# PERSONALITY, GRIT, AND PSYCHOLOGICAL CAPITAL

# AS THEY RELATE TO SALES PERFORMANCE

By

TIMOTHY L. COOMER

Bachelor of Engineering in Mechanical Engineering and Mathematics
Vanderbilt University School of Engineering
Nashville, TN
1985

Master of Business Administration
Vanderbilt University
Owen Graduate School of Management
Nashville, TN
1988

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of

DOCTOR OF PHILOSOPHY
July, 2016

PERSONALITY, GRIT, AND PSYCHOLOGICAL CAPITAL

AS THEY RELATE TO SALES PERFORMANCE

Dissertation Approved:

J. Craig Wallace, PhD

---

Dissertation Adviser

Bryan D. Edwards, PhD

---

Dursun Delen, PhD

---

Aaron Hill, PhD

---

ACKNOWLEDGEMENTS

Special Acknowledgment

To:

Sandy Coomer

My living example of grit and my beautiful wife with the heart of a poet.
Thank you for your unwavering support of all my crazy dreams.

And my four incredible children:

Shawn Coomer
Ryan Coomer
Seth Coomer
Nicholas Coomer

For their love and support.

-

To:

Dr. Wallace, Dr. Edwards, Dr. Delen, Dr. Hill, and the visionary leadership at Oklahoma State University for providing and supporting the doctoral program that I have enjoyed and from which I have received such tremendous benefit.

*It's not that I'm so smart, it's that I stay with problems longer.*

~ Albert Einstein

Acknowledgements reflect the views of the author and are not endorsed by committee members or Oklahoma State University.

Name: TIMOTHY L. COOMER

Date of Degree: July 2016

Title of Study: PERSONALITY, GRIT, AND PSYCHOLOGICAL CAPITAL AS THEY RELATE TO SALES PERFORMANCE

Major Field: BUSINESS ADMINISTRATION

Abstract: Salespeople produce significant value for organizations. The ability to identify or hire a salesperson with the capacity for higher than average performance is therefore important to sales managers and business owners. The extant literature has identified two personality traits that contribute to success as a salesperson: Conscientiousness and Extraversion. However, the recent emergence of new personality-related constructs of Honesty-Humility, grit, and psychological capital provide new opportunities to model job performance in a sales environment. The present study analyzed a complex model built with these constructs and found that Extraversion, fully mediated by psychological capital, drives performance. The study provides new insight into grit and psychological capital along with suggested new research opportunities.

TABLE OF CONTENTS

Chapter Page

LIST OF FIGURES

Figure Page

# CHAPTER I

## INTRODUCTION

A few years ago, I had the opportunity to sit down with one of the insurance brokerage industry's most successful "producers" (the industry's term for salespeople). He had generated millions of dollars in commissions for years, had been labeled a "power broker" by industry journals, and managed one of the most successful regional offices for a national brokerage firm. We had become friends over the years as my business supported his successful sales efforts with actuarial services and analytical software. As an entrepreneur, I was interested in understanding what he considered the leading challenge facing the insurance brokerage industry. Perhaps they needed a new analytical software tool, or a new consulting service that my business could provide. I posed the question and he paused to think. Then he replied, "If you can figure out how to identify who will succeed as a salesperson, then you will have solved the biggest challenge this industry faces."

That was not the answer I expected, but it led me on a journey to understand the factors that contribute to sales performance. As a result, I have become fascinated with the academic conversation on the relationship between personality and job performance, and

especially with the emerging concepts of grit, psychological capital (or PsyCap), and the personality model known as HEXACO. These theories and measures offer new ways to understand job performance in a sales environment.

In this study, I first discuss sales performance and how it is defined and operationalized for the present study. Next, I review the development of two personality models composed of the "Big Five" personality dimensions, along with the HEXACO personality inventory, which consists of six personality dimensions. These models have been widely accepted as assessing human personality in a comprehensive and non-overlapping way (Digman, 1990, p. 418). I pay particular attention to three of the six factors in HEXACO (Conscientiousness, Extraversion, and Honesty-Humility) that show the strongest evidence of correlation with job performance while controlling for the remaining factors (Emotionality, Agreeableness, and Openness to Experience). Next, I introduce the concept of grit, typically defined as "perseverance and passion for long term goals" (Duckworth, Peterson, Mathews, & Kelly, 2007, p. 1087) and I discuss both research and theories on the relationship between grit and sales performance. In the present study, I introduce and validate a scale to measure a variant of this broad, general, non-cognitive trait called "grit at work" or Grit@Work, a contextually focused expression of the broader grit construct and a mediating variable. In the theoretical model I present, grit is positioned as a distal predictor of sales performance along with the HEXACO personality traits. Grit@Work is positioned as a mediator with PsyCap because it captures a psychological trait absent from PsyCap and therefore explains additional variance in sales performance above and beyond PsyCap.

Finally, I propose PsyCap; a composite construct consisting of hope, self-efficacy, resiliency, and optimism; as a mediating motivational framework between personality and job performance.

The results of this study will provide interesting and valuable new insights into the performance of salespeople while also supporting potential improvement in the measurement and prediction of job performance.

**Need for the Study**

Finding and keeping good salespeople is one of the most challenging tasks for sales organizations (Wren, Berkowitz, & Grant, 2014, p. 107). In fact, practitioner-oriented journals within the insurance industry bemoan the decades-long struggle to identify and hire successful salespeople. It is estimated that 60% of insurance agencies never hire a single successful producer (*Insurance Journal*, 2014). A staggering 70% of new hires do not make it through their first contract year, and about 85% fail within the first three years (Weinberg, 2002, p. 126).

The ability of personality models to identify and predict sales performance has been amply documented (Sitser, Van der Linden, & Born, 2013, p. 139), but much variance in performance remains to be explained (Sitser et al., p. 127). In addition, given the significant challenge of hiring and retaining salespeople, little effort has been given to identify the characteristics that distinguish the most successful 20% from the rest of the sales staff.

Across all job classifications within the insurance industry (including both personal and commercial lines of insurance coverage) the annual turnover rate is 20% (Marsh Berry

2013). The insurance industry's turnover rate creates costs associated with additional training, candidate searches, and lost sales. Some estimate those costs to be as high as 250% of the first year's salary for each salesperson that leaves an organization (Cascio, 2013, p. 57). Unfortunately, this significant challenge has remained constant over the past few decades and many organizations have taken a "hire and see what happens" approach to staffing sales positions.

Since the acceptance of the Big Five personality model, research has demonstrated that salespeople's personality can be measured and their performance can be predicted by two traits within the model: Extraversion and Conscientiousness (Vinchur, Schippmann, Switzer, & Roth, 1998, p. 591). However, only a small percentage of the variance in performance can be explained using the models developed in past research. With the more recent emergence of the Honesty-Humility factor, this trait's connection with performance should be evaluated along with Conscientiousness and Extraversion.

Beyond the multiple-factor personality models, new research on the concept of grit (Duckworth et al., 2007) has identified a potentially useful personality trait. Through the use of a scale, developed and validated to measure grit, Duckworth et al. (2007, p. 1090) was able to identify this trait, measure it in a population, and correlate it with performance levels in different circumstances. Grit is defined as perseverance and passion for long-term goals (Duckworth et al., 2007, p. 1087). Grit is not captured by PsyCap and provides an interesting incremental opportunity to explain additional variance in sales performance.

Grit has been shown to predict success in various difficult environments including the U.S. Military Academy and the National Spelling Bee. Interestingly, grit was a better

predictor of success during the first-year summer transition period at West Point than the model utilized by the U.S. Army, which included several validated parameters (standardized test scores, class rank, and physical aptitude) (Duckworth et al., 2007, p. 1094). In later research, grit was shown to predict retention among salespeople in a very difficult sales environment (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014, p. 2). However, grit has not been utilized as a construct in a model to explain job performance variance within a sales environment. A contextually-focused scale to measure Grit@Work is also incorporated into the present study to differentiate the broad measure of grit from its application to the work environment.

PsyCap, defined as "individual motivational propensities that accrue through positive psychological constructs such as efficacy, optimism, hope, and resilience (Luthans, Avolio, Avey, & Norman, 2007, p. 542), is a relatively new construct on which limited research related to sales performance has been conducted. Because of the unique psychological challenges of a sales environment, with its constant doses of rejection and the need to find hope and optimism through long sales cycles, PsyCap may explain significant variances in job performance. The present study will examine whether PsyCap predicts job performance in a sales environment.

In conclusion, the success of most businesses depends heavily on hiring effective salespeople. The ability to explain variance in job performance and identify potential top performers based on the present study's proposed theoretical model; which combines the latest research on personality (HEXACO), grit, Grit@Work, and PsyCap; could help organizations improve financial results.

## Theoretical Framework

In a meta-analytic review of predictors of job performance among salespeople (Vinchur et al., 1998, p. 591), Extraversion and Conscientiousness were found to be the only two dimensions of the Big Five that significantly predicted performance. Extraversion predicted performance ratings with a validity coefficient of .18 and sales measures with a validity coefficient of .22. Conscientiousness predicted ratings and sales with validity coefficients of .21 and .31, respectively (Vinchur et al., 1998, p. 591). In addition, the *Handbook of Psychology* summarizes many of the meta-analyses of criterion-related validity of personality variables in predicting work-related results (Weiner & Schmitt, 2012, p. 215). These tables confirm that Emotional Stability, Agreeableness, and Openness to Experience do not predict sales effectiveness (Weiner & Schmitt, 2012, pp. 216-229). However, in the present study, these factors will be measured and controlled for.

The theories that help to explain why Conscientiousness and Extraversion correlate with salespeople's performance make intuitive sense and correspond to the real-life observations of experienced sales trainers (Greenberg, Weinstein & Sweeney, 2001, p. 9). Theoretically, conscientious sales people are motivated to be customer-oriented and to meet consumers' needs. Sales trainers generally describe this trait as desirable and characteristic of successful salespeople. Theoretically, Extraversion supports the motivation and energy to engage clients, build relationships, and maintain social contact (Larson & Ketelaar, 1991; Wilson, 1981). Extraversion has been shown to be positively associated with performance in emotional regulation tasks that require enthusiasm (Bono & Vey, 2007, p. 186). Extraversion has also been correlated with improved ability to

decode facial expressions and thus respond more appropriately in social situations (Li, Tian, Fang, Xu, & Liu, 2010, p. 297).

The newly added sixth personality factor, Honesty-Humility, does not have an intuitively obvious relationship with job performance. This factor, when low, represents someone who flatters others, bends the rules, wants expensive possessions, and tends to feel entitled to status and privilege (Lee & Ashton, 2013). When high, it indicates a person who does not manipulate others, is fair in interpersonal dealings, is not enamored with the trappings of wealth, and does not consider himself or herself superior to others. A person who measures high in this trait may resist trying to influence the buyer through anything that might resemble manipulation or slight modifications of the truth. This tendency could lower sales performance. In contrast, those who measure low in this trait may not be well liked due to their pompous and manipulative ways and their tendency to flaunt wealth in an "I'm superior to you" manner.

Honesty-Humility, however, is not considered in isolation. According to Lee and Ashton (2013, p. 61), "Conscientiousness can mitigate the effects of a low level of Honesty-Humility." On the other hand, someone low in Honesty-Humility but high in Extraversion will appear dominant and manipulative. This particular variant of Extraverts are comfortable in groups and meeting new people. They see themselves as having the right to dominate and deceive others, and they are very good at doing this. Therefore it is difficult to determine exactly how Honesty-Humility will interact with the proven performance predicting traits of Extraversion and Conscientiousness, but the present study will determine if there is a significant incremental variance explanation in the model from Honesty-Humility.

Research does exist showing incremental predictive power of Honesty-Humility. Johnson, Rowatt, and Petrini (2011), in a study of 269 employees, found that the addition of Honesty-Humility to a model including the Big Five personality traits increased the explained variance ($R^2$) of job performance from 0.06 to 0.08. This means Honesty-Humility explained 2% of additional variance. While these numbers may seem small, they point to Honesty-Humility's potential as a new and significant predictor of job performance in a sales environment.

It must be stressed that despite theories that connect certain personality traits to sales performance, much variance in performance remains unexplained. This considerable unexplained variance suggests the role of other personality traits and motivational factors beyond those previously identified. It is clear that in order to succeed in sales, one must be able to endure frequent rejection and maintain a high level of perseverance toward long-term goals. Rapaille (2005, p. 43) has called such personalities "happy losers." The nature of this personality trait fits nicely with the theory of grit (Duckworth et al., 2007).

In the present study, grit and its contextually focused variant Grit@Work, which recognizes the dynamics of the work setting in which grit may be applied (Veroff, 1983, p. 331), are presented as additional personality traits that may contribute to job performance. Grit is positioned in the theoretical model beside the HEXACO factors as an antecedent to the mediators Grit@Work and PsyCap. Grit@Work is positioned as a mediator beside PsyCap because it is a construct that sits outside of the theoretical definition of PsyCap and captures incremental variance in job performance not mediated by PsyCap.

Theoretically, salespeople with a higher level of grit persevere longer and with a higher level of motivation, behaving like Rapaille's happy losers. Grit entails working strenuously to overcome challenges and maintaining effort and interest over years despite failure, adversity, and plateaus in progress (Duckworth et al., 2007, p. 1088). In a more recent paper (Von Culin, Tsukayama, & Duckworth, 2014, p. 2), it is proposed that grit, which measures the two facets of perseverance and consistency over time, works through a motivational framework (Peterson, Park, & Seligman, 2005, p. 170) to support the pursuit of happiness. Gritty individuals don't give up easily and enjoy long-term engagement and pursuit of their goals.

In addition to Grit@Work, another motivational mediating framework utilized in the present study is positive psychological capital or PsyCap. "PsyCap reflects an underlying core agentic capacity that relates to adaptation and change, due to its positive influence on how individuals construct their experiences and consider alternatives when faced with a problem" (Combs, Luthans, & Griffith, 2009, p. 78). PsyCap was correlated with both desirable work attitudes and behaviors in one study (Avey, Reichard, Luthans, & Mhatre, 2011). Limited research has been conducted concerning PsyCap in a sales environment, but people working in such an environment would seem to benefit from a high level of PsyCap. Employees with higher levels of PsyCap have been shown to "weather the storm" (Luthans, Avolio, Avey, & Norman, 2007, p. 568) associated with challenging work environments better than those with low PsyCap. For this reason it is worthwhile to investigate this composite construct in the difficult and high-turnover environment associated with sales positions.

To summarize the theoretical framework, it is proposed that gritty, conscientious extraverts (probably with a high level of Honesty-Humility) have the psychological energy to meet the many demands of the sales process, satisfy customer needs, and persevere toward the long-term goal of building a significant clientele that generates above-average revenue for the firm. Due to a high level of Grit@Work and PsyCap, these successful salespeople succeed despite the experience of constant rejection and failure. While this model does not include Emotionality, Agreeableness, and Openness to Experience, these three additional HEXACO constructs will be measured and controlled for.

Finally, the theoretical framework is supported by insights from Jim Collins's well-known book *Good to Great* (2001). Collins highlights the fact that the leaders he studied needed a "paradoxical blend of personal Humility and professional will" (Collins, 2001, p. 20). This comment seems to frame the two recently delineated personality traits that are used in the present study, namely grit and Honesty-Humility. Previous research on HEXACO, grit, and PsyCap support this theoretical framework as a basis on which to build and evaluate a comprehensive new model to understand job performance in a sales environment.

**Purpose of the Study**

The purpose of this study is to develop a parsimonious model that can predict salespeople's performance utilizing the personality attributes of Honesty-Humility, Extraversion, and Conscientiousness with the personality trait of grit and its applied form Grit@Work. These personality attributes and traits work through two motivational

mediators, PsyCap and Grit@Work, to generate the desired behaviors and attitudes that lead to strong job performance in a sales environment.

Parts of the theoretical model used in the present study are well accepted, researched, and validated. Conscientiousness and Extraversion are widely acknowledged as predictors of job performance in a sales environment (Vinchur et al., 1998, p. 591, Barrick, Stewart, Piotrowski, 2002, p. 48, Warr, Bartram, and Martin, 2005, p. 89). PsyCap, while a relatively new composite construct, has quickly gained acceptance as a useful predictor of job performance as well (Luther et al., 2007, p. 563; Choi and Lee, 2014, p. 132; Avey, Nimnicht, Graber, 2010, p. 394). Grit, Grit@Work, and Honesty-Humility may add predictive power above and beyond that of prior theoretical models, thereby reducing the present and considerable unexplained variance in job performance. This study's purpose is to determine the value of these additional constructs and the aggregate predictive power of a framework that includes the previously validated constructs of Conscientiousness, Extraversion, and PsyCap.

**Research Questions and Hypotheses**

There have been a significant number of research studies in the area of personality and job performance with a specific focus on salespeople. Therefore, it is surprising that such a large portion of performance remains unexplained. Given the comprehensive and highly referenced meta-analysis by Vinchur et al., 1998, which reviewed 129 independent samples covering a wide range of sales jobs, there is solid evidence that Conscientiousness and Extraversion are correlated with job performance. The present study accepts the predictive value of Conscientiousness and Extraversion and seeks new theories and

theoretical constructs to explain additional variance in job performance in a sales environment. Thus the main research question is as follows:

> In addition to Conscientiousness and Extraversion, what incremental predictive ability of job performance is gained from adding measures of Honesty-Humility, grit, Grit@Work, and psychological capital into one comprehensive model?

The present study seeks to build a more complex and powerful model than those used previously to explain the variance in job performance among salespeople. The model first looks at the relationship between Honesty-Humility, Extraversion, Conscientiousness, and grit and their relationship, or correlation, with the mediating variables PsyCap and Grit@Work. PsyCap and Grit@Work are motivational frameworks that mediate the relationship between the personality factors (Honesty-Humility, Extraversion, Conscientiousness, grit) and job performance. As a result, there are several resulting research questions and hypotheses:

**RQ1**: How do the personality traits of Honesty-Humility, Extraversion, Conscientiousness, and grit correlate with the composite construct of PsyCap?

**RQ2**: How do the personality traits of Honesty-Humility, Extraversion, Conscientiousness, and grit correlate with the new construct of Grit@Work?

**RQ3**: How do PsyCap and Grit@Work correlate with job performance?

**Research Design and Model Overview**

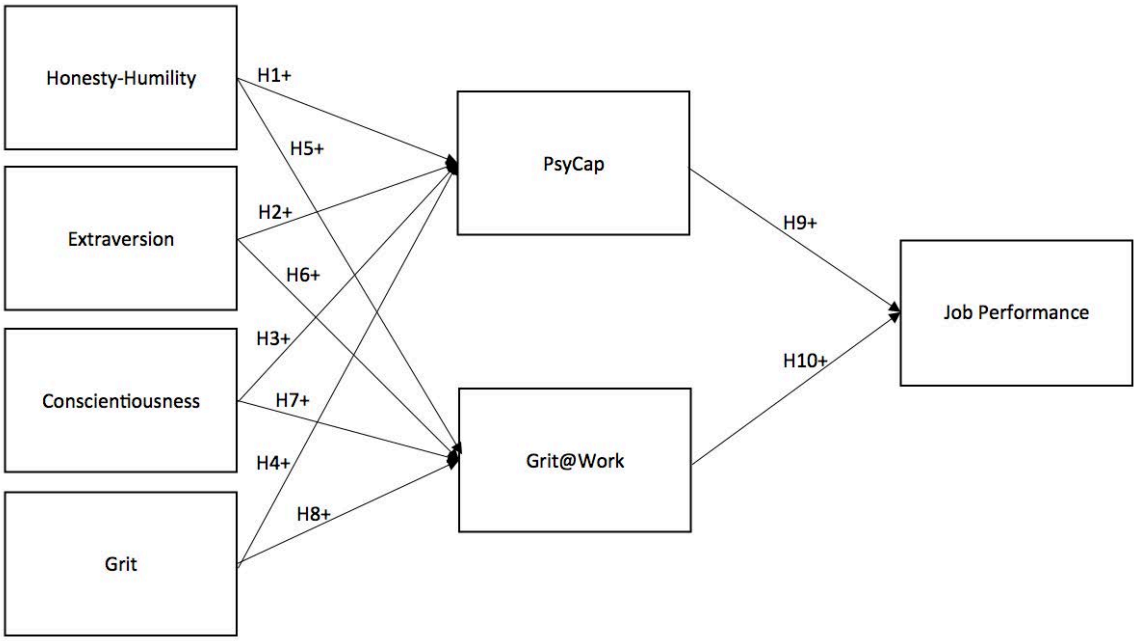
The research design for the present study consists of two phases. Phase I (consisting of Phases Ia and b), completed in summer 2015, used a survey tool that included psychometric scales for each of the theoretical constructs of the theoretical model. Data were gathered through Amazon's Mechanical Turk (MTurk) online sourcing service. This provided an opportunity to evaluate the model and complete some initial scale validation on the Grit@Work construct. Structural equation modeling techniques were utilized in this phase.

Phase II will utilize a revised form of this survey tool, containing slight modifications to the HEXACO and Grit@Work scales. Phase II will also incorporate job performance measures that will be gathered separately from the survey tool. The survey participants for Phase II will be a minimum of 300 salespeople who work in a business-to-business sales environment. These salespeople are active in business insurance sales or in related sales positions that provide software and services to insurance brokers. Most of these individuals are expected to come from large regional insurance brokerage firms with a substantial percentage of business insurance sales (i.e., property and casualty lines of insurance coverage) and from a nation-wide insurance software sales organization.

The proposed theoretical model (Figure 1) shows the relationship between the various constructs. The personality traits of Extraversion, Conscientiousness, Honesty-Humility, and grit are shown as correlated with PsyCap and Grit@Work. PsyCap and Grit@Work are then shown as correlated with job performance. The various hypotheses are labeled in the model and listed below the model for the reader's convenience. The

hypotheses and the research and theoretical support underlying them are formally introduced in a later section of this study.

Figure 1: Study Model




H1: Honesty-Humility is positively correlated with PsyCap

H2: Extraversion is positively correlated with PsyCap

H3: Conscientiousness is positively correlated with PsyCap

H4: Grit is positively correlated with PsyCap

H5: Honesty-Humility is positively correlated with Grit@Work

H6: Extraversion is positively correlated with Grit@Work

H7: Conscientiousness is positively correlated with Grit@Work

H8: Grit is positively correlated with Grit@Work

H9: PsyCap is positively correlated with job performance

H10: Grit@Work is positively correlated with job performance

As already noted, this model is more complex than most of those used previously to explain variances in job performance in a sales environment. Four of the constructs are relatively new (Honesty-Humility, grit, Grit@Work, PsyCap) and are considered in the present study for the first time as part of the same theoretical model. The three personality traits from HEXACO (Honesty-Humility, Extraversion, Conscientiousness) are fixed traits that are believed to develop early in life, and "an extensive database of research attests to personality continuities across the life course" (Caspi & Roberts, 2001, p. 56). There is no research to indicate whether grit is a fixed trait or if it can be developed later in life. However, it has been shown to increase with age (Duckworth et al., 2007, p. 1092). Grit@Work, a construct developed specifically for the present study, is based theoretically on trait activation theory (Tett & Burnett, 2003, p. 502) and theories related to the contextual determinants of personality (Veroff, 1983, p. 331) and functions as a mediator. PsyCap functions as a mediating motivational framework and has significant research supporting its correlation with job performance (Avey et al., 2011, p. 146). In the meta-analysis completed by Avey et al, 2011, 51 independent samples were utilized and PsyCap showed significant correlation with several measures of job performance.

**Significance of the Study**

Few studies have been conducted to understand the variance in job performance in a sales environment, and even relatively successful models have explained less than 10% of variance in most cases. This study is significant because it combines a unique set of theoretical constructs into one model. It is the first one to focus specifically on a large group of sales professionals and to utilize some of the latest and most promising research in the area of job performance.

# CHAPTER II

# LITERATURE REVIEW

The present study combines several theoretical constructs, some rigorously established and others relatively new, with the goal of better understanding job performance in a sales environment. I begin this literature review by looking at how sales performance has been understood, defined, and measured in past research. Next I move to a topic that has received considerable research attention: the effort to model personality traits and show their correlation with job performance. Of particular interest to the present study are the personality traits of Honesty-Humility, Extraversion, and Conscientiousness. These will be explored in greater depth than Emotionality, Agreeableness, and Openness to Experience. Grit, a measure of perseverance and consistency of interest, along with the expression of grit in the work place, Grit@Work, are then explored. Grit is a distal predictor of performance along with the HEXACO factors while Grit@Work is a mediating variable. PsyCap is a relatively new concept but has received significant interest since its formal debut in 2004. PsyCap, a mediating variable in the present study, is

explored in this literature review along with its four components: hope, efficacy, resiliency, and optimism.

## Defining and Measuring Sales Performance in a Business-to-Business Sales Environment

There are many factors that determine sales performance as discussed in Churchill, Ford, Hartley & Walker's 1985 foundational paper on the antecedents of sales performance. In their paper, a broad spectrum of aptitudes, behaviors, skills, personality traits, and environment factors are considered in a meta-analysis.

In the first edition, and through to the referenced 11th edition of Sales Force Management (Johnston & Marshall, 2013, p. 441), performance is understood in the context of behavior, performance, and effectiveness. Behavior refers to tasks performed by salespeople such as sales calls, presentations, customer service, and other activities and tasks that support the job function. Performance is an evaluation of how the behavior choices contribute to the goals of the salesperson and the organization. Effectiveness considers additional environmental and organizational factors that may be outside of the control of the salesperson to determine how the behaviors and performance are functioning in the broader context in which the salesperson must operate.

In the present study, the antecedents of interest are a broad set of personality measures that include HEXACO, grit, Grit@Work, and PsyCap. The goal is to link these personality measures with sales performance as measured by both behavior and success in reaching personal and organizational goals (performance as defined by Johnston & Marshall, 2013). Therefore, a measure of task and role performance along with a financial

measure will be utilized. In the past, the most common and direct measure of sales performance was a sale. "However, with growing recognition of the importance that customer loyalty, customer satisfaction, long-term relationship management, and customer knowledge management play in the strategic success of an organization, firms look beyond the transaction-based concepts of unit sales and immediate revenue when measuring and evaluating sales performance." (Zallocco, Pullins, Mallin, 2009, p. 598).

The business-to-business (B2B) sales environment on which the present study focuses, is different from retails sales of rather simple products. The target research participants for the present study are involved in the sale of very complex risk-financing solutions or in the sale of software that supports those engaged in such dealings. The sale of these products often results after long relationships between buyer and seller, many complex presentations, and many failures. The long sales cycle further emphasizes the need to measure behavior as an indication of performance in addition to financial metrics. This is because, theoretically, the right behaviors as determined by the organization should lead to the financial results, but these financial results may not occur for some time.

The present study seeks to identify relationships between various personality constructs and performance. Measuring performance appropriately is a necessary step in identifying these relationships. Given the complexity of the work environment and various work roles of the B2B salespeople surveyed, a role-based performance scale was selected for the qualitative role performance measurement. Two foundational theories, role theory and identity theory were utilized by Welbourne, Johnson, and Erez (1998, p.541) to support the formation of a Role-Based Performance Scale (RBPS). Role theory suggests that both a person's attributes and the context within which they exist will determine performance.

Identity theory suggests that behavior choices are influenced by the way that an event or information is processed. The roles that stand out the most to people as being desirable will receive the most focus and emphasis. Many of the roles that salespeople play within their organization go beyond defined job tasks, therefore measuring both types of roles leads to a better performance measurement.

By building on role and identity theory, the RBPS was developed. The scale was developed using data from multiple companies across a variety of industries and job categories. The scale measures five roles: job, organization, career, team, and innovator. A sixth role was introduced later to capture the customer service role (Chen & Klimoski 2003, p. 593). The job role is what has typically been studied over the past several decades. It includes the tasks and specific activities related to the job description. The organization role encompasses activities that are not specifically required by the job description but are of value to the organization as a whole. The career role recognizes the need for the employee to actively seek career development, training, and credentials in order to add value to the organization. The team role focuses on the need for the employee to foster and participate in effective team effort. In recognition of the need for employees to contribute to the overall effectiveness of the organization, the innovator role looks at the individual's addition to overall creativity and innovation. Finally, the addition of the customer service role captures "working with clients or customers internal or external to the organization toward the success of the project" (Chen & Klimoski 2003, p. 597).

The RBPS was selected for the present study because the work environment of the majority of participants is complex and team oriented, and it includes all five of the roles the RBPS captures. A quick description of the work environment of a typical participant is

informative. The salesperson works in a highly complex and professional setting dealing with large financial purchases involving a variety of very technical subjects. The job requires the salesperson to complete a typical sales cycle: identifying prospects, making sales calls, giving presentations, following up, responding to questions, and many more tasks. The organization that the salesperson works for is a large part of what he or she is selling – the reputation and perceived capability of the organization as a whole. The employee must fill the organizational role both internally and externally that supports the market perception of the firm.

The RBPS career role is important in an industry where professional designations and industry-specific expertise are significant differentiators in the marketplace. The salesperson must, on his or her own initiative, pursue the training to obtain these differentiating qualifications. The team role is central to the performance of the salesperson. In the complex setting where the survey participants work, teams of five to ten employees typically support the salesperson. There are account managers who step in after the sale, customer service representatives who respond to daily needs and requests, and subject matter experts who help implement the plans and goals agreed upon between the salesperson and the customer. The team must function at a high level and the salesperson is often the one who directs it and can strongly influence the team's success. Finally, the innovator role recognizes the need for individual creativity, ideas, and innovation to influence the performance of the organization. The salesperson must contribute to the global capabilities and effectiveness overall.

The RBPS is an excellent fit for the present study because the best salespeople will perform all of these roles and do them well. This qualitative assessment of the salesperson can then be paired with a financial metric.

After the RBPS scale is completed by the salesperson's manager, the manager will be asked two questions concerning financial results. Both questions use a five point Likert-type scale and are developed specifically for the present study given the author's knowledge of the sales organizations that participated in the survey. The two questions are shown below:

Objective Sales Performance Survey Items

To what extent did this salesperson reach his\her financial goals during the most recently completed evaluation period?

5 – Sales were significantly above goal (25% or more above goal)

4 – Sales were above goal (10% to 25% above goal)

3 – Sales were within 10% of goal (+10% to -10% of goal)

2 – Sales were below goal (10% to 25% below goal)

1 – Sales were significantly below goal. (25% or more below goal)

---

How would you rank the overall sales performance of this salesperson? Think of five tiers where each tier represents 20% of the salespeople. The list below is designed to help you visualize what we are asking. Remember, this is a relative ranking of your salespeople. You should attempt to allocate your salespeople evenly among the five tiers.

Tier 5 - Top 20% - 80th percentile and above

Tier 4 - 60th to 80th percentile

Tier 3 - The middle 40th to 60th percentile

Tier 2 - The 20th to 40th percentile

Tier 1 - Bottom 20% - 20th percentile and below

5 – This person falls in tier 5, the top 20% bracket for sales performance
4 – This person falls in tier 4, the 60th to 80th percentile for sales performance
3 – This person falls in tier 3, the middle 40th to 60th percentile of sales performance
2 – This person falls in tier 2, the 20th to 40th percentile for sales performance
1 – This person falls in tier 1, the bottom 20% bracket for sales performance

The two objective financial sales performance measures will be averaged together to produce one metric. This objective metric will then be averaged with the RBPS to produce one overall sales performance metric for utilization in the analysis of the proposed theoretical model.

**Factors that Influence the Success of Salespeople**

The review of the literature on Extraversion and Conscientiousness will highlight several aspects of these personality traits that suggest why they are correlated with sales performance. A salesperson high in Extraversion and Conscientiousness sets high goals, pursues them diligently, and is energized and motivated by the extrinsic reward of success while also finding intrinsic motivation in doing an excellent job. But it is interesting to consider what sales managers and trainers identify as traits that make a salesperson successful before moving on to a review of personality models.

One of the classic and still relevant studies of salespeople was done by Mayer and Greenberg in 1964. They spent seven years researching what makes a good salesperson by working in the field with both salespeople and sales trainers (Mayer and Greenberg, 1964, p. 164). The study indicated that 50% of salespeople don't make it through the first year and 80% leave the profession within three years. Moving forward 38 years, things did not improve. Even higher attrition figures were reported by Weinberg (2002,

p. 126): 70% in the first year, 85% within three years. Despite the best efforts of sales managers and business owners, turnover continues to be extremely high.

Mayer and Greenberg identified two essential qualities for success in sales: empathy and ego drive. These core qualities seem to fit well with the traits associated with Conscientiousness and Extraversion. Empathy requires the salesperson to be able to identify what the customer feels and wants. This grasp of the customer is critical (Mayer and Greenberg, 1964, p. 166), and little to no selling will happen without it. Interestingly, a study on the Big Five personality model (discussed in the next section) and empathy showed that a group of hospice palliative care volunteers who scored higher in empathy than a control group also scored significantly higher in Extraversion (Claxton-Oldfield & Banzen, 2010, p. 410). As I will explain in the next section on personality, extraverts have more energized emotional responses, read facial clues and subtle communications from others better than introverts, and have a better capacity to express and feel emotion. The need for empathy highlighted by Mayer and Greenberg seems to reinforce the positive value of Extraversion.

The other essential quality that Mayer and Greenberg found was ego drive, or the need to conquer. This concept fits neatly with the blend of Extraversion and Conscientiousness that has previously been found to correlate with goal setting and the passion needed to pursue those goals. The trait of grit should also support the need to conquer by offering consistency of interest and perseverance.

**Personality, the Five-Factor Model, and HEXACO**

The roots of personality measures can be traced to Sir Francis Galton's lexical hypothesis (Galton, 1884, p. 179), which proposed that personality traits could be identified based on language usage. Galton, a prolific researcher and writer, created a solid foundation on which decades of personality research have been built. However, interest in understanding personality long predates Galton; for example, nearly 3,000 years earlier the Greeks created some fascinating and long-enduring descriptions of personalities in their mythological characters. Though only recently defined scientifically, personality traits and their impact on human behavior have been of interest for a very long time.

Serious efforts to model personality began in the 1920s and continued over a long, contentious period of development. Forty years into this period, Guion and Gottier (1965, p. 160) famously concluded, "It is difficult in the face of this summary to advocate, with a clear conscience, the use of personality measures in most situations as a basis for making employment decisions about people." This conclusion prompted more vigorous research that ultimately led to the wide acceptance of the Five-Factor Model (FFM), also known as the Big Five (Norman, 1963; Tupes & Christal, 1961). The Big Five encompasses measurements of Conscientiousness, Extraversion, Agreeableness, Emotional Stability, and Openness to Experience.

Much later, Lee and Ashton (Ashton et al., 2004; Lee & Ashton, 2004) studied personality factors in other languages and cultures, and a six-factor structure of personality emerged. The newly added factor, Honesty-Humility, contains four scales to measure sincerity, fairness, greed avoidance, and modesty. The six-factor model is referred to as

HEXACO (Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience). I will briefly review relevant research on each trait and its relationship to job performance in a sales environment.

**Honesty-Humility.**

Honesty-Humility, as noted above, is the personality trait that Lee and Ashton (Ashton et al., 2004; Lee & Ashton, 2004) added to the widely accepted Big Five model. Interestingly, Ashton et al. (2004, p. 356) returned to the psycholexical approach used by Galton in 1892 to study personality traits and structure across eight languages. From this analysis, the new factor emerged. To better understand it, it is helpful to review the adjectives, descriptions, and subtraits of Honesty-Humility.

Lee and Ashton (2013, p. 17) have provided a list of adjectives related to Honesty-Humility. Figure 2 shows these adjectives along with descriptions of people with high or low levels of this trait.

Figure 2: Adjectives and Descriptions of Honesty-Humility

| Honesty-Humility | Adjectives | Description |
|---|---|---|
| High | Sincere | Avoid manipulating others or being false |
| | Honest | Scrupulously fair, law-abiding |
| | Faithful | Wealth and luxury not so important |
| | Loyal | Don't consider themselves superior |
| | Modest | |
| | Unassuming | |
| | Fair-minded | |
| | Ethical | |
| Low | Sly | Flatter others, pretend to like them |
| | Deceitful | Willing to bend rules for personal gain |
| | Greedy | Want money and expensive possessions |
| | Pretentious | Feel entitled to special status and privilege |

| | |
|---|---|
| | Hypocritical |
| | Boastful |
| | Conceited |
| | Self-Centered |

*Source:* Lee & Ashton (2013), p. 17.

The Honesty-Humility factor captures aspects of materialism, ethical violations, and criminality better than the Big Five model (Ashton & Lee, 2008, p. 1226). It has also been shown to predict job performance even when controlling for Conscientiousness (Johnson, Rowatt, & Petrini, 2011, p. 860). As noted in the previous chapter, Collins (2001, p. 70) identified both Humility and will as critical to successful leadership. Although Collins did not examine the sales environment specifically, it is reasonable to interpret his results as an indication that Honesty-Humility may be positively correlated with job performance in a sales context. Johnson et al. (2011, p. 861) conducted a broad study across 25 companies and 20 states and found that Honesty-Humility did predict job performance generally; they expressed doubts that the same correlation would appear in a sales environment, but no prior empirical research has considered that question.

A recent study looked at HEXACO, and specifically Honesty-Humility, and how it relates to achievement goals (Dinger, Dickhauser, Hilbig, Muller, Steinmayr and Wirthwein, 2015). Achievement goal theory is a cognitively-oriented view of behavior that attempts to understand the individual differences in intensity and direction of goal pursuit (Dweck and Leggett, 1988, p. 256). This goal-seeking behavior is an expression of personality that might help us understand and predict difference in salespeople's performance. One study indicated that Honesty-Humility is substantially related to all achievement goals and more strongly related to mastery goals and is significant in the

prediction of motivation to learn and achieve (Dinger, Dickhauser, Hilbig, Muller, Steinmayr and Wirthwein, 2015, p. 5). While the study was conducted with students, it does point to a theoretical basis for why Honesty-Humility may play a significant role in understanding job performance in a sales environment where learning and goal achievement are critical components of success.

**Emotionality.**

Emotionality, also known as neuroticism in the Big Five model, is associated with being anxious, depressed, angry, embarrassed, emotional, worried, and insecure (Barrick & Mount, 1991, p. 4)—obviously not desirable personality traits for any job. No correlation has been found between Emotionality and sales criteria or sales performance (Vinchur et al., 1998, p. 591), and Barrick and Mount (1991, p. 14) found no support for their hypothesis that Emotionality would be related to job performance. The *Handbook of Psychology* (Weiner & Schmitt, 2012, p. 215) states, "Sales Effectiveness … is not predicted by Emotional Stability, Agreeableness, and Openness to Experience." Emotionality is therefore not included in the theoretical model tested in the present study.

**Extraversion.**

Extraversion has been shown to correlate with job performance across many industries (Hurtz & Donovan, 2000, p. 873). It is associated with expressiveness, social boldness, sociability, and liveliness (Lee & Ashton, 2004, p. 335). There are minimal differences in how the five-factor model and HEXACO define the facets of Extraversion (Lee & Ashton, 2004, p. 333). In the Big Five model, Extraversion is described as social, assertive, active, bold, energetic, and adventurous (Costa & McCrae, 1992, p. 654;

Goldberg, 1992, p. 31). These differences are not considered material for the purposes of the present study, in which a personality questionnaire based on HEXACO's definition of Extraversion is used in the present study.

When people think about the characteristics of a salesperson, they typically think of traits represented by Extraversion. Extraverts' desire to compete, to excel in a competitive work environment, and to obtain rewards for success has been noted in several research studies (Gray, 1987; Lucas, Diener, Grob, Suh, & Shao, 2000). Barrick, Stewart, and Piotrowski (2002) found that salespeople scoring high on Extraversion reported stronger intentions regarding status striving. Extraverts want to succeed and are motivated by reward systems that provide incentives for particular sales achievements.

One aspect of Extraversion that seems to drive the connection to sales performance is social potency, which refers to an individual's tendency to be forceful, dominant, and charming (Altmaier & Hansen, 2001, p. 167; Dupue & Collins, 1999). Social potency has also been positively related to specific enterprising interests such as sales, with correlations ranging from .29 to .49 (Altmaier & Hansen, 2001, p. 167). Vinchur et al., (1998, p. 591), noted a relationship between social potency and objective measures of sales employees' performance. As is a very positive aspect of extraverted behavior, it can help to explain success in sales. But social potency is just one piece of a very complex puzzle.

Starting with the fact that extraverts' social potency makes them charming and dominating personalities and then adding the observation that extraverts are happier than introverts (Smillie, Cooper, & Revelle, 2012, p. 306), we see a personality that would

seem very attractive in a sales environment. In addition, an extravert's reaction to situations where rewards can be pursued, such as a commission sales environment, is stronger and more energized than that of introverts, due to their "biobehavioral" reward-reactivity (Smillie et al., 2012, p. 306). They actually experience a strong physiological response in the brain response when competing for a reward.

A meta-analysis by Lucas et al. (2008, p. 459) reported a similarly strong correlation between Extraversion and positive affect, or the internal emotional state that is present when an objective has been achieved, a source of danger has been avoided, or a person is happy with the current state of affairs. Extraverts enjoy the pursuit of success, tend to be happier while engaged in such pursuit, and respond with more positive feelings and happiness when they achieve their goal. And if a sales situation calls for expressing enthusiasm, the extravert is capable of doing so without experiencing stress, whereas others may find it difficult to do so.

Finally, sales is about networking and building relationships that provide the opportunity to discuss needs, present solutions, and close deals. Therefore, having a large network of contacts, acquaintances, and/or social connections supports the salesperson's effort to identify and communicate with prospective clients. In a recent study of network bias, Feiler and Kleinbaum (2015, p. 600) determined that "more extraverted individuals were cited as friends by significantly more people and cited significantly more people as their friends." This network-building capacity of extraverts is another prominent factor in their successful job performance in a sales environment. With such a list of traits that correlate highly with sales performance, we might conclude that the extravert is wired for success.

**Agreeableness.**

Agreeableness encompasses forgiveness, gentleness, flexibility, and patience (Lee et al., 2004, p. 333). Although it is significant in a customer-service role (Hurley, 1998, p. 121) and perhaps in an account management role after the sales process is complete, Agreeableness is not correlated with sales performance (Vinchur et al, 1998, p. 591). Agreeableness is therefore not included in the theoretical model tested in the present study.

**Conscientiousness.**

It is usually easy to identify conscientious people. They are very organized, work hard, and act responsibly (Judge & Illies, 2002). Interestingly for the purposes of the present study, Conscientiousness is strongly correlated with grit ($r = .77$) (Duckworth et al., 2007, p. 1093). I will explore grit more fully below, but both Conscientiousness and grit reflect a tendency to set ambitious goals and pursue them with a high level of dedication (Brown, Con, & Slocum, 1998; Fu, Richards, & Jones, 2009).

Conscientiousness has been shown to correlate with job performance across a broad spectrum of industries (Barrick & Mount, 1991, p. 13; Salgado, 1997, p. 31), but it seems especially to equip people for work within a sales environment (Vinchur et al, 1998, p. 591), which requires a considerable degree of effort and motivation. Campbell (1991, p. 706) defined motivation as the combined result of three behavioral choices involving effort: the decision to expend effort, the level at which to expend the effort, and the amount of perseverance to put behind the effort. Traits identified as part of Conscientiousness support this tendency toward motivation. Lee and Ashton (2013, p.

21) described a person high in Conscientiousness as being orderly with things and time, working hard to achieve goals, pursuing accuracy and perfection, being prudent, and making careful decisions. Whereas extraverts are motivated by rewards, conscientious people are motivated to achieve their high goals because they believe it is the right way to do things. A conscientious person is intrinsically motivated to pursue accomplishment and perfection for the sake of the accomplishment itself and the personal satisfaction that comes with reaching a goal.

In a meta-analytic review of Conscientiousness and job performance, the narrow traits of Conscientiousness were investigated for incremental validity across specific industries (Dudley, Orvis, Lebiecki and Cortina, 2006, p. 40). This review provides an additional understanding of why Conscientiousness predicts success in a sales environment. The subtraits of achievement, dependability, order, and cautiousness were analyzed for their correlation with job performance. For sales positions, achievement showed the strongest relationship with job performance ($r$ =.15) while cautiousness was not significantly correlated with performance (Dudley, Orvis, Lebiecki and Cortina, 2006, p. 50). It is important to note that the achievement narrow trait is a strong compliment to the competitive and award-seeking behavior of the Extravert.

**Openness to Experience.**

Openness to Experience is a personality factor associated with people who are intellectual, creative, unconventional, imaginative, innovative, and philosophical (Lee & Ashton, 2013, p. 17). They tend to appreciate beauty in art and nature, are intellectually curious, use imagination in everyday life, and like to hear unusual opinions. Openness to

Experience is not correlated with sales performance (Vinchur et al., 1998, p. 591) and is not included in the theoretical model tested in the present study.

### Grit and Grit@Work.

Grit is a relatively new construct. Whether it is a personality trait established early in life or a state that one can improve and develop has not yet been determined. For the purposes of the present study, grit is an aspect of personality that leads to "consistency of interest" and "persistence of effort" (Duckworth, 2007, p. 1090; Von Culin, Tsukayama, & Duckworth, 2014, p. 1). Grit is about having the ability to push hard against challenges, even after most people have given up. However, grit, unlike the HEXACO personality traits, may or may not be applied in the workplace—it appears that people may choose consciously when to express this trait. Therefore, grit should be studied and measured in a workplace-specific context. I will refer to the expression of grit in the workplace as Grit@Work in the present study.

The benefits of grit in a professional, business-to-business sales environment are readily apparent. Given the high turnover rate (MarshBerry, 2013) and the constant rejection (Rapaille, 2005, p. 43) that salespeople experience, there is a distinct need to focus on the job at hand and persevere. There has been little research on grit in job environments thus far, but it has been shown to predict success in difficult army training courses, in the National Spelling Bee, and in a study of a challenging sales environments (Duckworth et al., 2007, p. 1095; Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014, p. 3).

The grit scale developed by Duckworth et al. (2007, p. 1090), asks broad questions that could pertain to any part of life, as grit may be expressed in one area and not in another. However, the present study is more narrowly concerned with expressions of grit in the workplace. As an analogy, a study by Shalley, Zhou, and Oldham (2004) considered the impact of contextual characteristics on the employee's willingness and ability to express creativity. Similarly, Grit@Work is an effort to measure the application of grit within the work environment.

Tett and Burnett (2003) highlighted how a work circumstance may affect the expression of a particular trait or behavior. These circumstances include job demands, distracters, constraints, releasers, and facilitators. Since grit relates to perseverance and consistency of interest, it would require the employee to have some control over these circumstances, receive compensation that supports grit (which may imply that long term goals are rewarded), and have the organizational citizenship behaviors to feel motivated to apply one's grit within the work setting. While the present study does not attempt to explain or investigate all the reasons that grit may or may not be applied in the work setting, Grit@Work is measured separately from the broader grit construct to quantify this expression.

Veroff (1983, p. 331) argued, "Behavior represents an interaction of personality and situation." While most personality researchers would agree that the personality factors that make up the HEXACO model are solid traits that are experienced and expressed independent of the contextual setting, a more malleable trait that leans more toward a state, like grit, may be expressed more selectively based on contextual cues and motivations. While Grit@Work will obviously be strongly correlated with grit, it is

expected that Grit@Work will have a between-person variance among those completing the survey with similar levels of grit.

**Positive Psychological Capital.**

The concept of positive psychological capital (PsyCap) evolved from the positive psychology movement pioneered by Martin Seligman. Positive psychology focuses on what people are doing right and on finding ways to improve how people think and the habits they create. Positive psychology motivated two new research endeavors: positive organizational scholarship and positive organizational behavior (POB). POB refers to positive aspects of people that can be measured and developed in order to improve overall organizational performance. In seeking to identify key positive behaviors, Luthans, Luthans, and Luthans (2004, p. 46), posited that employees' hope, efficacy, resiliency, and optimism are critical and frequently overlooked components of competitive advantage. They also contended that "such capacities are measureable, open to development, and can be managed for more effective work performance" (Luthans et al., 2004, p. 47).

PsyCap has been successfully utilized in several studies, showing significant correlation with job performance. Avey, Nimnicht, and Pigeon (2010) conducted two field studies in very different business settings, with bank tellers and franchised financial services salespersons, and both showed a significant correlation between PsyCap and manager-rated performance. In a meta-analysis, Avey, Reichard, Luthans, & Mhatre (2011, p. 147) determined that PsyCap retained a significant relationship with job performance across multiple and quite varied industries. Avey et al. (2011) presented

PsyCap in a manner followed by the present study, stating, "The theoretical position consistently advanced is that the mechanisms in the components of PsyCap act as individual motivational propensities and effort to succeed resulting in increasing performance output" (p. 134). As a mediator in the present study, PsyCap is presumed to work as a motivational framework through which other personality traits impact job performance.

A deeper understanding of the four components of PsyCap will help to anticipate why PsyCap matters in a sales environment. It will also shed light on the opportunity it provides for development and improvement in performance. Whereas HEXACO personality traits cannot be modified in order to enhance performance, and grit may be developed over time (but it is not clear how malleable it is), there is significant research supporting PsyCap's longitudinal development potential and resulting improvement in performance (Luthans, Avey, and Patera, 2008). PsyCap is often referred to by the acronym HERO, standing for hope, efficacy, resiliency, and optimism. These four components are held together by the theme presented in Luthans, Avolio, Avey, and Norman, 2007, p. 550: "one's positive appraisal of personal circumstances and the probability for success based on personal motivated effort and perseverance." To me, this provides a perfect summary of the mental state necessary for success in a sales environment. Below is a brief look at HERO.

***Hope.***

Merriam-Webster's dictionary defines hope as "to want something to happen or be true and think that it could happen or be true." The word also has a solid theoretical

basis in the field of positive psychology. Hope is "the will and the way" in the HERO acronym. Luthans built off the work of positive psychologists who previously defined hope as "a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals)" (Snyder, Irving, and Anderson, 1991, p. 287). Hope in this context represents goal-directed determination and the method by which a goal will be reached, thus the "will and the way." This combination of knowing what one wants and having an idea of how to get it is central to goal achievement. Certainly this mental posture called hope would support a salesperson in a sales environment.

***Efficacy.***

Efficacy is all about confidence and certainty. Merriam-Webster defines efficacy as "the power to produce an effect." We can intuitively recognize that efficacy is something we can improve by attempting tasks, making mistakes, learning, improving, and gaining mastery and confidence. Theoretically, efficacy has been shown to develop as a result of focused effort (Gist, 1987, p. 474). In the HERO acronym, efficacy is "Confidence to Succeed," a critical trait in a sales environment that presents substantial challenges to master knowledge, communicate effectively, and deal with resistance to buying. Efficacy, as a component of PsyCap, provides real practical implications for how a salesperson will perform his or her job.

***Resiliency.***

Resiliency may be less intuitive to us than hope and efficacy. Merriam-Webster defines resilience as "the ability to become strong, healthy, successful again after

something bad happens." In the resiliency literature a typical definition is, the "selective strengths or assets to help… survive adversity." (Richardson, 2002, p. 309). Whether resiliency can be learned or improved or whether it is a fixed trait is debated among scholars. Interestingly, in Luthans' HERO acronym, he defines resiliency as "Bouncing Back and Beyond." He expands on the established understanding of resiliency, from the purely psychological viewpoint, to include "a) the capacity to make realistic plans and take steps to carry them out; b) a positive view of yourself and confidence in your strengths and abilities; c) skills in communication and problem solving; and d) the capacity to manage strong feelings and impulses." (Luthans, Avolio, and Avey, 2013, p. 5). He continues that these "things" can be developed and improved by anyone. In a sales environment, the four characteristics he lists are important, but a more restricted definition of resiliency—one that focuses on the capacity for recovery—helps us understand why this component of PsyCap would support success in a sales environment in which disappointment and failure are constant hurdles and setbacks to be overcome.

***Optimism.***

Seligman describes optimism as a way people explain the world, i.e. how they see and explain causes of bad events (Buchanan and Seligman, 1995 p. 2) Luthans agrees with the psychology literature's view of optimism but adds the concept of "realistic and flexible." (Luthans, Avolio, and Avey, 2013, p. 5). He sees value in an organization or leader (and I think we can assume salesperson too) who can choose when to be optimistic in his or her view of events and when to be pessimistic.

***HERO.***

It is clear that while these components of PsyCap are distinct concepts, there is a more complex interplay between them that can be difficult to fully comprehend. A review of the literature can elicit questions such as "how does efficacy impact optimism?" and "does hope correlate with resiliency?" But an analysis in the foundational paper on PsyCap (Luthans et al., 2004) and a review of research, it is clear that PsyCap has been proven to be a powerful incremental predictor of success. The present study will determine the incremental predictive power of PsyCap in the presence of other proven predictors of job performance.

## Theoretical Integration and Hypotheses

The literature review related to the seven theoretical constructs in the model (Honesty-Humility, Extraversion, Conscientiousness, grit, PsyCap, Grit@Work, job performance) provides the background on the development of these constructs and lays the foundation for specific integration of theory with the hypotheses. In this section theoretical support is given for each of the 10 hypotheses shown in Figure 1.

An individual high in Honesty-Humility represents a fair-minded person who does not seek attention for him- or herself and has a high level of ethical behavior. No research exists on the relationship between Honesty-Humility and PsyCap. But by looking at the literature on concepts related to Honesty-Humility and PsyCap, one can get an indication of what this relationship might be. Honesty-Humility is significantly correlated with prosociality and religious orientation (Aghababaei, Mohammadtabar, & Saffarinia, 2014, p.8).

Humility is becoming a more desired trait among corporate executives, leaders, and salespeople. A recent study by Owens, Johnson, Mitchell (2013, p. 1517) focused on Humility, synthesizing years of literature and religious writings to define it as "an interpersonal characteristic that emerges in social contexts that connotes (a) a manifested willingness to view oneself accurately, (b) a displayed appreciation of others' strengths and contributions, and (c) teachability." They continue, "humility allows individuals to believe they can improve their personal weaknesses." (Aghababaei et al., p. 1521). This suggests a tendency toward stronger PsyCap which represents hope, efficacy, resiliency, and optimism. Humble people are strongly correlated with religiosity (Grubbs & Exline, 2014, p. 43). A connection with a personal deity has been theorized to relate to increased optimism and self-efficacy (Ciarrocchi, Dy-Liacco & Deneke, 2008, p. 132). Based on the literature summarized previously on Honesty-Humility and this specific research relating honesty and/or humility to hope, efficacy, resiliency, and optimism, the following hypothesis is proposed:

*Hypothesis 1: Honesty-Humility is positively correlated with PsyCap*

The definition of Extraversion connotes someone who is high in PsyCap. Extraverts, as defined by Lee & Ashton, (2013, p. 20), "see the positive qualities in self, [are] confident leading and speaking in groups, enjoy social interactions, and feel enthusiastic and upbeat." Compare this to the four components of PsyCap (hope, efficacy, resiliency, and optimism) and it is not difficult to project a positive correlation. In fact, the relationship between Extraversion and PsyCap is well established in the literature as is the

relationship between Extraversion and the four sub-traits of PsyCap (hope, efficacy, resiliency, and optimism).

Some research has looked at the relationship between Extraversion and the complete construct of PsyCap. Choi and Lee (2013, p. 129) show a correlation between PsyCap and Extraversion of 0.37 ($p < 0.01$). A comprehensive analysis of PsyCap, performance, and job satisfaction by Avolio, Avey, and Norman (2007, p. 560) showed a correlation between Extraversion and PsyCap of 0.36 ($p < .05$).

More specifically, when looking at the components of PsyCap, each individual trait (hope, efficacy, resiliency, and optimism) has been shown to correlate with Extraversion. In a recent study on Hope as a mediator between the Big Five personality traits and life satisfaction, Extraversion was shown to be the personality trait that correlated most strongly with hope (Halama, 2010, p. 311). In self-managed work groups, an environment that would be common to the participants in the present study, it was found that the correlation between Extraversion and self-efficacy was 0.38 ($p < 0.01$) (Thoms, Moore & Scott, 1996, p. 357). In a study on subjective well being, Extraversion was shown to have a correlation with resiliency of 0.40 ($p < 0.001$) (Lu, Wang, Liu, & Zhang, 2014, p. 131). Finally, in a study of five large samples covering 4,332 participants that looked specifically at the relationships between the Big Five and optimism, Extraversion was found to be the most strongly correlated factor of the Big Five with optimism. The correlations varied across the groups but were all significant with $p < .01$. (Sharpe, Martin, Roth, 2011, p. 949).

The definition of Extraversion, the components of PsyCap, and the voluminous research on Extraversion and its relationship with PsyCap as a whole and with its individual components suggest a strong relationship between Extraversion and PsyCap.

*Hypothesis 2: Extraversion is positively correlated with PsyCap*

When I compared the definition of Extraversion to PsyCap, the similarities and potential correlation was immediately obvious. There is a little more of a theoretical walk needed to understand the relationship between Conscientiousness and PsyCap, even though Conscientiousness has been the focus of much research and there is specific evidence that points to a strong relationship between Conscientiousness and PsyCap. According to Lee & Ashton, (2013, p. 20), Conscientious people are orderly with things and time, work hard to achieve goals, pursue accuracy and perfection, and are prudent decision makers. I suggest that application of these traits – working hard in an organized and wise manner – leads to feelings of hope, efficacy, resiliency, and optimism (the traits of PsyCap). The two studies that specifically looked at the Big Five and its relationship with PsyCap (Choi and Lee, 2013, p. 129, and Avolio, et al., 2007, p. 560) show correlations between Conscientiousness and PsyCap of 0.48 ($p < 0.05$) and 0.39 ($p < 0.05$) respectively. Conscientiousness has specifically been shown to correlate with efficacy. In a study designed to understand the relationship between Conscientiousness and learning, Lee and Klein (2002, p. 1178) show a significant correlation between Conscientiousness and the mediator in their model (self-efficacy). This correlation was 0.28 ($p < 0.01$). This supports Costa & McCae's earlier work (1992) showing that Conscientious people perceive themselves as being capable and effective.

In the *Handbook of Adult Resilience* (Reich, Zautra & Hall, 2010, p. 98), the authors highlight the relationship between Conscientiousness and resilience. Conscientious people tend to follow a plan and work consistently toward a goal. This trait leads to resilient behavior. Even in situations of chronic illness, highly Conscientious people have been shown to be more resilient (Christensen, Ehlers, Wiebe, Moran, Raichle, Ferneyhough & Lawton, 2002, p. 318). In the regression analysis from Christensen et al.'s study, Conscientiousness had a significant negative beta ($B = -0.066$ $p < 0.05$) in a model designed to predict mortality. Therefore, high levels of conscientiousness predicted high levels of resiliency and lower levels of mortality even when subjects faced a chronic illness. Finally, Conscientious people are more optimistic. In a study designed to look specifically at the relationship between the Big Five personality factors and optimism, Conscientiousness was shown to explain additional meaningful variance in optimism (Sharpe, Martin & Roth, 2011, p. 951). It seems clear that Conscientious people have a way of thinking and acting that leads to consistent effort and success. This builds a sense of hope, efficacy, resiliency, and optimism over time as the conscientious way of doing things, evident in childhood (Eisenberg, Duckworth, Spinrad, Valiente, 2012, p. 1333), builds PsyCap. As a result, it is proposed that:

*Hypothesis 3: Conscientiousness is positively correlated with PsyCap*

As discussed previously, grit is a relatively new construct and is utilized as a distal predictor of job performance and an antecedent to PsyCap and Grit@Work in the present study. Grit shares psychological space with Conscientiousness (Reed, Pritschet, Cutton, 2013, p. 613) but taps into an ability to commit to long-term goals that may not be present

in a highly conscientious person. Grit is not hope and how it might relate to hope has no basis in the extant literature except for a recent dissertation that looked at how hope and grit related to transformational leadership (Davidson, 2014, p. 52). In this dissertation, the provided table of intercorrelations showed a significant correlation between hope and grit of .326 ($p < .01$).

Grit differs from the trait of self-efficacy (Reed et al., 2013, p. 613). Efficacy is about the belief in your ability while grit is simply a reservoir of stamina distinct from both hope and efficacy. By definition, the stamina of a person with a high level of grit would seem to indicate resiliency – the ability to continue after setbacks and to continue even in the presence of obstacles. This relationship was shown in a study that looked at measures of grit, optimism, and life satisfaction as predictors of teacher effectiveness (Duckworth, Quinn, Seligman, 2009, p. 544). The resulting intercorrelations showed a significant correlation between grit and optimism of 0.32 ($p < 0.001$). Although grit is a relatively new concept which occupies some overlapping theoretical space with other constructs in the proposed model, there is reason to believe that it captures a trait unique from our other HEXACO traits and will add incremental variance explanation in relation to PsyCap. Accordingly, I propose:

*Hypothesis 4: Grit is positively correlated with PsyCap*

The next four hypotheses look at the relationship between the antecedents (Honesty-Humility, Extraversion, Conscientiousness, and grit) and the new construct, Grit@Work, defined for the purposes of the present study. As a reminder, Grit@Work is defined as the application of the grit trait within the work setting. There are both

personality traits and situational factors that influence whether or not a person's capacity for grit is actually applied to the challenges of the workplace. One goal of the present study is to understand which of the personality traits will explain the variance in Grit@Work. Obviously, a person's capacity for grit will explain variance in Grit@Work. But of greater interest is how Honesty-Humility, Extraversion, and Conscientiousness influence the utilization of one's grit capacity at work. This question is explored in Hypotheses 5, 6, and 7. For example, for a given level of grit, do higher levels of Honesty-Humility correlate with higher levels of Grit@Work? The model is not looking for the correlation between personality traits and grit, but the impact the personality traits have on the application of one's grit within the workplace.

Clearly, grit is not going to be on someone's specific task list at work. It is not a trait or requirement found in a job description. Job performance has often been operationalized as task performance because that concept is more easily defined and measured. However, in recent years job performance has been considered in the broader context of contextual performance. Contextual performance activities include volunteering to carry out task activities that are not formally part of the job and helping and cooperating with others in the organization to get tasks accomplished. Task performance for a sales job includes product knowledge, closing the sale, and organization and time management (Borman & Motowidlo, 1997, p. 100). The question is then, what contributes to the decision to bring more than just the minimal amount of one's abilities to the work environment?

It has been shown that "Honesty-Humility has a meaningful, non-zero incremental validity for contextual performance" (Oh, Le, Kim, Yoo, Hwang, Kim, 2014, p. 215). It is

theorized that a person high in Honesty-Humility is more likely to utilize all of his or her strengths to serve the good of the organization – going beyond simple task requirements. If grit is a trait from which the employee can draw and he or she is high in Honesty-Humility then it is more likely to see the application of that grit in the form of Grit@Work. Therefore, it is proposed:

*Hypothesis 5: Honesty-Humility is positively correlated with Grit@Work*

Theoretically, contextual performance tendencies are the best way to anticipate the impact that personality factors have on the application of one's potential for grit within the workplace. Extraversion and Conscientiousness have both been shown in meta-analytic studies to correlate with components of contextual performance (Hurtz & Donovan, 2000, p. 875; Hogan & Holland, 2003). However in Gellatly and Irving (2001, p. 237) a significant correlation was found between Extraversion and contextual performance ($r = .233$, $p < 0.05$) but a negative relationship was found between Conscientiousness and contextual performance ($r = -0.129$, $p < 0.05$). The finding pertaining to Conscientiousness was counter to the proposed hypothesis in the study. The study population was 79 public-sector managers. This conundrum is addressed by theories presented in Tett and Burnett's paper on trait activation processes. They highlight "as propensities, traits are latent potentials residing in the individual; understanding what triggers them is critical for understanding the role of personality in the workplace." (Tett and Burnett, 2003, p. 502). It may be that Gellatly and Irving, studying a public-service environment, found a contextual setting where the trait of conscientiousness was not activated by the environment and thus there appeared to be no correlation between Conscientiousness and contextual

performance. The setting for the participants of the present study is a highly goal oriented environment. This setting should meet the criteria explained by Tett and Burnett, "…latent personality traits will manifest as trait-expressive work behaviors only when trait-relevant cues are present at the task, social, or organizational levels." (Tett and Burnett, 2003). Given the setting for the present study, the concept of trait activation, and the majority of findings related to Extraversion and Conscientiousness correlating with contextual performance, it is proposed that:

*Hypothesis 6: Extraversion is positively correlated with Grit@Work*

*Hypothesis 7: Conscientiousness is positively correlated with Grit@Work*

Grit is measured as one of the antecedents in the model along with Honesty-Humility, Extraversion, and Conscientiousness. A review of the 12-item grit scale, shown in Appendix A, highlights the fact that grit is measured as a broad personality construct and is not contextually specific. However, grit may be applied in one part of a person's life but not in another. For example, the application of grit to a personal passion for endurance athletics may be captured in the 12-item grit scale, but this same potential for grit may not be applied within the workplace. The 16-item Grit@Work scale, shown in Appendix A, sets the contextual setting as the work environment. However, before someone can apply grit within the workplace, they must possess the capacity for grit as measured by the 12-item grit scale. If everyone was willing to use all of their abilities in the workplace and the workplace facilitated that use, then you would expect to find an extremely high correlation between grit and Grit@Work. However, this is not the case and Grit@Work, while correlated with grit, leaves variance that can be explained by the personality traits of

Honesty-Humility, Extraversion and Conscientiousness. But the broadly measured trait of grit is the core necessary prerequisite of Grit@Work and thus it is proposed that:

*Hypothesis 8: Grit is positively correlated with Grit@Work*

PsyCap, when originally introduced, immediately received much attention and was the object of significant amounts of research in various domains, including the prediction of job performance. Luthans et al. (2007 p. 551) proposed a hypothesis that "Employee's level of PsyCap will be positively related to their performance and job satisfaction." Two different studies were conducted and PsyCap was shown to correlate significantly in both, with a self-rated evaluation of job performance (study 1, $r = 0.33$, $p < .01$, study 2, $r = 0.22$, $p < 05$) (Luthans, et al., 2007, p. 564). Within a few years of this initial look at PsyCap and job performance, enough additional studies had been completed to allow for a meta-analysis of PsyCap and its impact on employee attitudes, behaviors, and performance (Avey, et al. 2011). In this analysis, the components of PsyCap (hope, efficacy, resiliency, and optimism) were shown to increase desirable attitudes and behaviors at work, which lead to increased employee performance. The relationship between PsyCap and indicators of performance was reviewed across 24 studies containing 6,931 survey participants and was found to be $r=0.26$ ($p < 0.01$). Therefore, it is proposed:

*Hypothesis 9: PsyCap is positively correlated with job performance*

Obviously there is no research pertaining to Grit@Work, therefore the research pertaining to grit and its relationship to job performance will be referenced. Grit is a highly desirable trait within most work settings because it represents the ability to persevere and

maintain passion over long periods of time in the pursuit of goals. Within a sales environment, where rejection and obstacles to closing the sale are a constant challenge, it would seem especially relevant. Before grit had been formally defined, a study looking at the relationship of effort (grit would be the long term application of effort) to job performance showed a correlation $r = .51$ ($p < .01$) (Brown & Peterson, 1994, p. 75).

*Hypothesis 10: Grit@Work is positively correlated with job performance*

In summary, the theoretical model for the present study positions four psychological constructs as antecedents to PsyCap and Grit@Work. These mediating variables are then positioned as predictive of job performance. The ten hypotheses will be evaluated based on data from a minimum of 300 survey participants and by utilizing structural equation modeling for statistical testing.

**Literature Review Summary**

This literature review demonstrates how two of the Big Five personality traits, Conscientiousness and Extraversion, are correlated with job performance in a sales environment. However, much variance in job performance has not been explained by these models. Thus, the relatively new constructs of grit, Honesty-Humility, and PsyCap have been introduced, along with Grit@Work, in the hope of adding predictive power to that offered by Conscientiousness and Extraversion. The literature provides strong indications that these additional constructs will add incremental predictive value above what has been achieved in the past.

# CHAPTER III

# METHODOLOGY

The present study evaluates numerous complex theoretical constructs simultaneously in order to predict job performance in a sales environment, Grit@Work. Because of the need to establish and validate this new construct, a two-phase study was conducted. The first phase (consisting of Ia and Ib) supported the evaluation of the theoretical model and the development of the Grit@Work construct. Phase II will utilize the validated Grit@Work construct along with other existing constructs (HEXACO, grit, and PsyCap) to test the proposed theoretical model.

## Phase Ia: Grit@Work Scale Development and Model Testing

### Grit@Work Scale Development.

Luthans et al. (2007, p. 544) have provided an excellent summary of the different types of personality constructs on a continuum from states to traits. The four alternatives include positive states, state-like, trait-like, and positive traits. The personality traits that we identify with the Big Five model or HEXACO are considered non-malleable parts of

our personality and fall into the trait-like category. These traits tend to be expressed in all life situations. Other attributes of our personality, such as PsyCap, can be increased or developed and are therefore considered state-like. It has been theorized, as previously discussed, that grit can be developed through life experiences and that a person may choose the degree to which his or her capacity for grit is applied within a certain setting. For the present study, it was important to measure the application of grit within the work environment. Thus, a contextually-focused Grit@Work scale was needed.

***Psychometric Analyses.***

The methodology for the scale development effort was based on Hinkin (1998) and DeVellis (2012). First, the grit scale (Duckworth et al., 2007, p. 1090) contains 12 items to measure the two subconstructs of consistency of interests and perseverance of effort. In order to contextualize this to the workplace, three items similar to each of the 12 grit items—but applicable to the work environment—were devised. These 36 items were then utilized in the survey during Phase I.

The 36 items were developed by modifying the original grit items in three ways, with the intent of capturing the quality and nature of the original grit question while contextualizing it to the work place. For example, the consistency of interest measure, which consists of 6 items in the original grit scale, became 18 items in the test items for Grit@Work (see Figure 3 below).

Figure 3: Grit Item vs. Grit@Work Items

| Original Grit Item | Corresponding Contextualized Grit@Work Items |
|---|---|
| I often set a goal but later choose to pursue a different one | 1) At work, I often set a goal but later choose to pursue a different one.<br>2) I set goals at work but often change them.<br>3) I have difficulty staying focused on my work goals. |

These items simply insert the prepositional phrase "at work" at the beginning of the sentence or in the sentence or rephrase the questions slightly to include work as an adjective as in "I have difficulty staying focused on my *work* goals." All 36 items for Grit@Work were developed in a similar manner. These items were then presented to four fellow PhD students and two professors for face validity. These individuals all have extensive work experience or experience with the development of various psychometric measures. It was agreed that the 36 Grit@Work items had face validity.

Second, the survey for Phase Ia included many other items as well; these are discussed later in the section on model testing. The survey was conducted using Amazon's cloud sources workplace, known as Mechanical-Turk (MTurk). Through this site I recruited U.S. workers with a minimum age of 18 to complete the 234-item instrument. I received a total of 1,034 surveys, of which 868 were entirely completed and accepted for analysis.

Third, once the data was obtained, I sought to reduce items for the Grit@Work scale under development during this phase of the research. This process was completed using exploratory factor analysis with MPlus software and by analyzing inter-item correlations. None of the inter-item correlations were less than 0.4 (Kim & Mueller, 1978, p.). Therefore, no items were eliminated due to low inter-item correlations.

Fourth, an exploratory factor analysis was completed with the initial loadings of the factors on Grit@Work consistency of interest and Grit@Work Persistence of Effort as shown in Figure 4.

Figure 4: Factor Loadings prior to Item Reduction

| Consistency of Interests Item | Standardized Factor Loading |
|---|---|
| GWCOI1A | 0.762 |
| GWCOI2A | 0.767 |
| GWCOI3A | 0.796 |
| GWCOI4A | 0.744 |
| GWCOI5A | 0.721 |
| GWCOI6A | 0.701 |
| GWCOI1B | 0.736 |
| GWCOI2B | 0.792 |
| GWCOI3B | 0.813 |
| GWCOI4B | 0.741 |
| GWCOI5B | 0.749 |
| GWCOI6B | 0.744 |
| GWCOI1C | 0.732 |
| GWCOI2C | 0.719 |
| GWCOI3C | 0.794 |
| GWCOI4C | 0.769 |
| GWCOI5C | 0.759 |
| GWCOI6C | 0.807 |

| Perseverance of Effort Item | Standardized Factor Loading |
|---|---|
| GWPOE1A | 0.689 |
| GWPOE2A | 0.534 |
| GWPOE3A | 0.799 |
| GWPOE4A | 0.78 |
| GWPOE5A | 0.511 |
| GWPOE6A | 0.669 |
| GWPOE1B | 0.703 |
| GWPOE2B | 0.552 |
| GWPOE3B | 0.818 |
| GWPOE4B | 0.781 |
| GWPOE5B | 0.631 |
| GWPOE6B | 0.663 |
| GWPOE1C | 0.716 |
| GWPOE2C | 0.611 |
| GWPOE3C | 0.755 |
| GWPOE4C | 0.782 |
| GWPOE5C | 0.546 |
| GWPOE6C | 0.677 |

Note that the item name GWCOI1A, for example, means Grit@Work consistency of interest Question 1 contextualized version A. Each original Duckworth question had an A, B, and C version as a Grit@Work item. Figure 5 shows model fit statistics with all items included.

Figure 5: Model Fit Statistics for Grit@Work utilizing all 36 Items

| Parameter/Test | Value/Result |
|---|---|
| $X^2$ | 7893 ($p < .05$, dof = 593) |
| CFI | 0.72 |
| RMSEA | .119 (90% CI .117 - .121) |
| SRMR | 0.094 |

Item reduction proceeded by evaluating the loadings of the factor. While the analytics (factor loadings and modification indices) were the primary driver of item reduction, there was a desire to have at least one Grit@Work item representing each item within the original Duckworth grit construct. The model was then rerun to produce model fit parameters. The process was repeated until satisfactory model parameters were produced and a set of Grit@Work items were retained that parsimoniously represented the theory of the construct. Given that Phase Ia of the research was exploratory, the items for Grit@Work were not reduced as much as they would be if this was the only phase of the research. It was decided to accept slightly lower loading factors in order to ensure at least one Grit@Work item per original grit item.

The final resulting model contained 8 items for Grit@Work consistency of interest and 8 items for Grit@Work perseverance of effort. These items with their factor loadings are shown below.

Figure 6: Grit@Work Items and Factor Loadings

| Item | Standardized Factor Loading | Item | Standardized Factor Loading |
|---|---|---|---|
| GWCOI2A | 0.764 | GWPOE3A | 0.841 |
| GWCOI1B | 0.744 | GWPOE4A | 0.823 |
| GWCOI2B | 0.811 | GWPOE1B | 0.682 |
| GWCOI3B | 0.812 | GWPOE3B | 0.869 |
| GWCOI4B | 0.750 | GWPOE4B | 0.813 |
| GWCOI1C | 0.720 | GWPOE5B | 0.555 |
| GWCOI5C | 0.719 | GWPOE2C | 0.535 |
| GWCOI6C | 0.795 | GWPOE6C | 0.585 |

The resulting model fit statistics for the final model are as follows:

Figure 7: Model Fit Statistics for Grit@Work Final 16 Items (8 COI and 8 POE)

| Parameter/Test | Value/Result |
|---|---|
| $X^2$ | 775 ($p < .05$, dof = 103) |
| CFI | 0.92 |
| RMSEA | .087 (90% CI .81 - .92) |
| SRMR | 0.065 |

The Cronbach alpha for the 8 Grit@Work COI items was 0.9183, and the Cronbach alpha for the 8 Grit@Work POE items was .8830. The Grit@Work construct will be evaluated again in Phase Ib and Phase II starting with the 16 items selected in Phase Ia research.

**Model Testing.**

Along with the 36 proposed Grit@Work items, the survey administered in Phase Ia included the following measurements:

HEXACO: a new scale to measure HEXACO, developed by Dr. Craig Wallace and Dr. Bryan Edwards, containing 141 items that measured Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience.

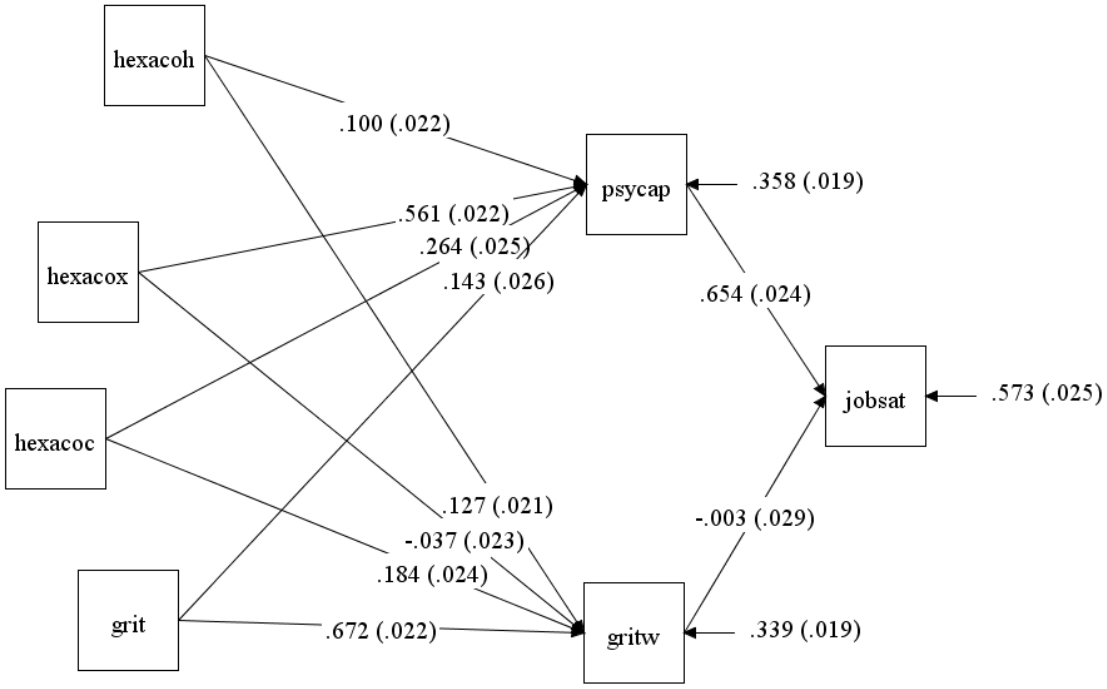
Grit: the grit scale developed by Duckworth et al. (2007, p. 1090).

PsyCap: the 24-item Psychological Capital Questionnaire (PCQ) (Luthans, Youssef, & Avolio, 2006, p. 237).

Job satisfaction: The Brief Index of Affective Job Satisfaction, which has four items, (Thompson & Phua, 2012, p. 301), since, for the purposes of the Phase Ia research, it was not possible to independently assess job performance.

The data collected, in addition to supporting the scaled validation effort for Grit@Work, provided an opportunity to test the theorized model using Confirmatory Factor Analysis (CFA). After I completed the Grit@Work validation, the selected items were retained in the database. All constructs were scored by computing the average response across all items within a construct. This generated a database with ten variables: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness to Experience, grit, Grit@Work, PsyCap, and job satisfaction. The variables of Emotionality, Agreeableness, and Openness to Experience were not utilized in the present study and were removed from the database. The remaining seven variables were used in a Confirmatory Factor Analysis. The standardized results and the model are shown below in Figure 8.

Figure 8: Phase Ia Theorized Model with Standardized Estimates




The model fit parameters were good: $\chi^2 = 38.02$ ($p < .05$), CFI = .986, RMSEA = .087, SRMR = .019. This analysis provided confidence in the underlying theory of the model.

However, a potential issue was identified: Grit@Work (gritw) had a non-significant estimated path coefficient with job satisfaction (jobsat) of –.003. This could be due to a specification error where an assumption has been made in the model that is false. Given the constraints of Phase Ia (the subjects were not salespeople and the measure of job satisfaction was substituted for job performance) a specification error is not surprising. As explained in Kline (2011, p. 24), "specification error refers to the problem of omitted predictors that account for some unique proportion of total criterion variance but are not included in the analysis." It is reasonable to believe that all models

contain specification error (Kenny, 2009). However, the manner in which specification error was introduced in the Phase Ia model was by substituting the endogenous variable job performance with job satisfaction. In Brown and Peterson (1994, p. 77) they found that job satisfaction is only weakly correlated with job performance in a sales environment. In a meta-analysis of the job satisfaction – job performance relationship across 312 samples and many industries, the mean correlation was 0.30 ($p$ = 0.30 corrected for unreliability in the measures) (Judge, Thoresen, Bono, Patton, 2001, p. 385). While job satisfaction provided some indication of job performance in our test model, our proposed model for Phase II is theoretically-informed, utilizes validated measures of job performance, and is less likely to demonstrate this specification error found in Phase Ia.

Additional analysis revealed that Grit@Work (gritw) was correlated with job satisfaction (jobsat) and PsyCap (psycap). These strong correlations, along with the identified specification error, made the Grit@Work (gritw) coefficient non-significant. Again, job satisfaction will not be utilized as a construct in Phase II. It can be argued that PsyCap and job satisfaction should be highly correlated due to the similar positive psychological tendencies that both constructs measure. Job performance, which will be determined in Phase II through both subjective (supervisor rating) and objective (financial) measures, is likely to have a different correlation profile with the two mediating variables of PsyCap and Grit@Work. See Figure 9 for the bivariate correlation matrix for all variables in the Phase Ia theoretical model.

Figure 9: Bivariate Correlation Matrix

| | H | X | C | GRIT | PSYCAP | GRITW | JOBSAT |
|---|---|---|---|---|---|---|---|
| H | 1.000 | | | | | | |
| X | -0.089 | 1.000 | | | | | |
| C | 0.225 | 0.366 | 1.000 | | | | |
| GRIT | 0.225 | 0.430 | 0.542 | 1.000 | | | |
| PSYCAP | 0.142 | 0.710 | 0.570 | 0.550 | 1.000 | | |
| GRITW | 0.322 | 0.309 | 0.563 | 0.785 | 0.472 | 1.000 | |
| JOBSAT | 0.148 | 0.529 | 0.439 | 0.377 | 0.653 | 0.306 | 1.000 |

Note that the correlation between Grit@Work and Job Satisfaction is 0.306. The correlation between PsyCap and Job Satisfaction is 0.653. The correlation between PsyCap and Grit@Work is 0.472. When variables are correlated, as PsyCap and Grit@Work are in this instance, it has been shown that the variance explained by the two variables may not be correctly partitioned (Darlington, 1968, p. 162). As highlighted in a recent paper on relative importance analysis (Tonidandel & LeBreton, 2011, p. 1), two alternative approaches, dominance analysis (Budescu, 1993) and relative weight analysis (Fabbris, 1980; Johnson, 2000), have been developed to provide additional ways to partition the variance when there are correlated predictors.

Also, based on the limited information available on the profile of participants in Phase Ia, it appears that few were salespeople. This dimension will thus also change in Phase II. Again, the primary purpose of Phase Ia was to develop the Grit@Work scale; the secondary purpose was to perform initial evaluation of the theoretical model. The lack of a job performance measure and the difference in participant job profiles were

known limiting factors in this phase; nevertheless, valuable analysis was completed on the Grit@Work scale and positive indications for the theoretical model were obtained.

I do not anticipate that the issue with Grit@Work and Job Satisfaction will occur in Phase II, when the model utilizes the theoretically appropriate job performance measure. However if it does, the alternative methods suggested by Budeascu, Fabbris, and Johnson will be considered in order to determine the appropriate contribution that PsyCap and Grit@Work make to the variance prediction in job performance.

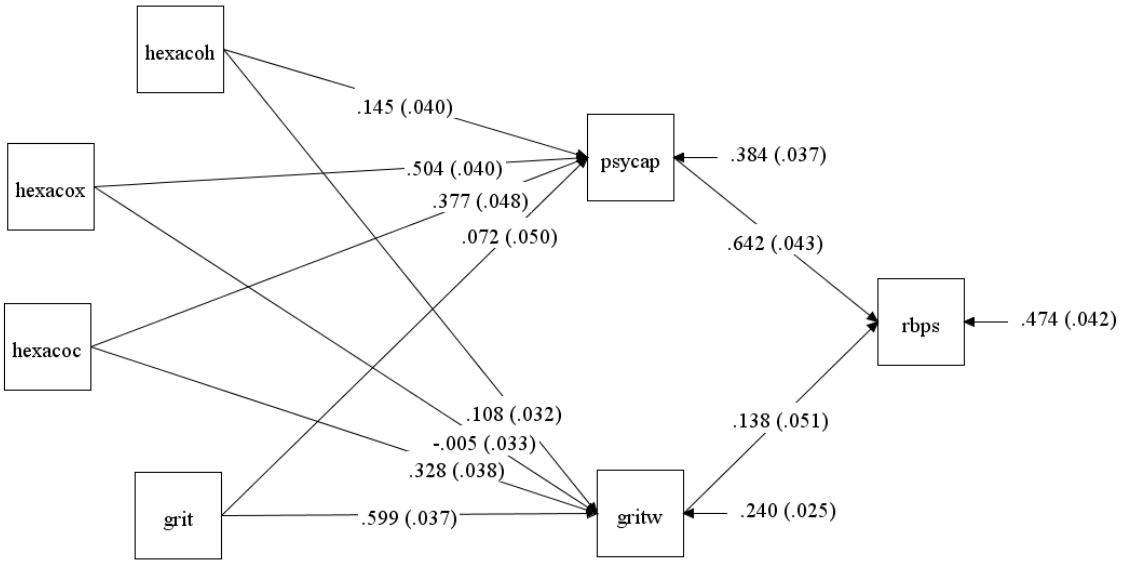
## Phase Ib: Revised Model Testing

Given the findings of Phase Ia testing, another test was completed in order to assess the impact on the model when a Self-Report Role Based Performance Scale for the estimate of job performance was used. This replaced the measure of job satisfaction utilized in Phase Ia. Phase Ib testing also provided an opportunity to complete another confirmatory factor analysis on the 16 Grit@Work items to further evaluate the new construct.

### Model Testing.

The survey instrument utilized in Phase Ib replaced Phase Ia's four job satisfaction questions with the 20 item self-report version of the Role Based Performance Scale (Welbourne, Johnson and Erez, 1998, 554). The results of the test were promising. See Figure 10 for the resulting Phase Ib Theoretical Model with Standardized Estimates.

Figure 10: Phase Ib Theorized Model with Standardized Estimates




The model fit parameters were good: $\chi^2 = 24.58$ ($p < .05$), CFI = .977, RMSEA = .120, SRMR = .026. Also note that the relationship between Grit@Work and the Self-Report Role Based Performance Scale is non-zero and is significant ($p < .05$). It appears that a better measure (although a self-report) of job performance solved the specification issues found in Phase Ia testing. This second model test also provides an opportunity to look at the consistency of the relationships in the model from Phase Ia to Phase Ib. A comparison of the standardized path estimates for each model are shown in Figure 11.

Figure 11: Comparison of Standardized Path Estimates Phase Ia vs. Phase Ib

| | | **Phase Ia** | | **Phase Ib** | |
|---|---|---|---|---|---|
| Hypothesis | Path | Estimate | *p* value | Estimate | *p* value |
| H1 | Honesty-Humility > PsyCap | 0.100 | 0 | 0.145 | 0 |
| H2 | Conscientiousness > PsyCap | 0.264 | 0 | 0.377 | 0 |
| H3 | Extraversion > PsyCap | 0.561 | 0 | 0.504 | 0 |
| H4 | Grit > PsyCap | 0.143 | 0 | 0.072 | 0.15 |
| H5 | Honesty-Humility > Grit@Work | 0.127 | 0 | 0.108 | 0 |
| H6 | Conscientiousness > Grit@Work | 0.184 | 0 | 0.328 | 0 |
| H7 | Extraversion > Grit@Work | -0.037 | 0.11 | -0.005 | 0.88 |
| H8 | Grit > Grit@Work | 0.672 | 0 | 0.599 | 0 |
| H9 | PsyCap > Job Performance* | 0.654 | 0 | 0.642 | 0 |
| H10 | Grit@Work > Job Performance* | -0.003 | 0.93 | 0.138 | 0.01 |

* Job Performance was measured by a Job Satisfaction Index in Phase Ia and by a self-report RBPS in Phase Ib

## Phase Ia and Phase Ib Model Comparison

The two models generated similar path estimates for the 10 hypothesized relationships. This indicates the strong possibility that our Phase II testing will produce significant results. The relationship between grit and PsyCap was not significant in Phase Ib but was significant in Phase Ia. The relationship between these two constructs has not been investigated or discussed anywhere in the extant literature (although theoretically it makes sense that one's level of grit would lead to life experiences and mental tendencies that would reflect a higher level of PsyCap). It will be interesting to see how Phase II estimates this relationship.

In both Phase Ia and Phase Ib, the relationship between Extraversion and Grit@Work was not significant. This is interesting since Eskreis-Winkler et al. (2014, p. 36) did show a correlation between Extraversion and grit (the Duckworth measure and not the Grit@Work measure) in a sales environment of 0.25. However, this relationship

was much weaker than the correlation between Conscientiousness and grit, 0.64, found in the same study.

Other path estimates are similar between the two models except for the relationship between Grit@Work and job performance. This is due to the change in the estimated measure of job performance from job satisfaction in Phase Ia to a Self-Report Role Based Performance Scale in Phase Ib. This is a positive indication that the theoretical model will perform well in the Phase II testing utilizing salespeople actively engaged in a sales position and whose job performance is evaluated subjectively by a supervisor and objectively by financial information.

**Phase Ib: Confirmatory Factor Analysis of Grit@Work Scale**

The confirmatory factor analysis utilizing the 16 Grit@Work items selected in Phase Ia (and shown previously in Figure 6) were utilized in Phase Ib, providing an independent data sample for another analysis of the new Grit@Work construct. The factor loadings for the items were similar to Phase Ia and are shown below in Figure 12.

Figure 12: Grit@Work Standardized Factor Loading Phase Ia vs. Phase Ib

| Item | **Phase Ia** Standardized Factor Loading | **Phase Ib** Standardized Factor Loading | Item | **Phase Ia** Standardized Factor Loading | **Phase Ib** Standardized Factor Loading |
|---|---|---|---|---|---|
| GWCOI2A | 0.764 | 0.782 | GWPOE3A | 0.841 | 0.862 |
| GWCOI1B | 0.744 | 0.803 | GWPOE4A | 0.823 | 0.849 |
| GWCOI2B | 0.811 | 0.776 | GWPOE1B | 0.682 | 0.742 |
| GWCOI3B | 0.812 | 0.826 | GWPOE3B | 0.869 | 0.888 |
| GWCOI4B | 0.750 | 0.817 | GWPOE4B | 0.813 | 0.823 |
| GWCOI1C | 0.720 | 0.797 | GWPOE5B | 0.555 | 0.634 |
| GWCOI5C | 0.719 | 0.704 | GWPOE2C | 0.535 | 0.540 |
| GWCOI6C | 0.795 | 0.843 | GWPOE6C | 0.585 | 0.491 |
| Cronbach Alpha | 0.9183 | 0.9313 | Cronbach Alpha | 0.8830 | 0.8925 |

## Phase II: Test of Hypothesized Model

In Phase II, the Grit@Work scale will be further evaluated and validated. The theoretical model will be tested using structural equation modeling and the results will be interpreted.

## Sample and Data Collection Procedures

A sample of a minimum of 300 sales people will be utilized for data collection. A national software company that focuses on the insurance industry will provide 80 sales people from their staff to participate. An additional 220 or more insurance broker salespeople who are clients of the participating insurance software company will also participate. There will be two components to the gathering of data: survey completion by salespeople and financial review and performance information provided by managers or human resource personnel. The survey will consist of all the theoretical constructs, as listed in the next section, and will be presented via an online survey form to the participants. The survey is anticipated to have a total of 148 items. A method that insures privacy of data, utilizing a software program that I have written that blind matches the records, will be utilized to match the results of the survey with the performance measures.

## Measures

Each theoretical construct was measured using a survey item or financial data. Each construct and measure is summarized in Figure 13 below.

Figure 13: Phase II Measures

| Construct | Measure | Items |
|---|---|---|
| Honesty-Humility | HEXACO - Wallace and Edwards version 2015 | (all HEXACO = 141 items) |
| Emotionality* | HEXACO - Wallace and Edwards version 2015 | |
| Extraversion | HEXACO - Wallace and Edwards version 2015 | |
| Agreeableness* | HEXACO - Wallace and Edwards version 2015 | |
| Conscientiousness | HEXACO - Wallace and Edwards version 2015 | |
| Openness to Experience* | HEXACO - Wallace and Edwards version 2015 | |
| Grit | Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1090 | 12 |
| PsyCap | Luthans, Youssef, & Avolio, 2006, p. 237 | 24 |
| Grit@Work | Developed as part of the present study | 16 |
| Job Performance - A | Welbourne, Johnson and Erez, 1998, p. 554 | (Completed by manager - 20) |
| Job Performance - B | Salary/Compensation and quartile placement | (obtained separate from survey) |

* Not utilized in the theoretical model, but measured for control purposes.

## Analysis Methodology

The theoretical model attempts to explain in more detail the relationship between personality traits and job performance by introducing two mediating variables: PsyCap and Grit@Work. While the four antecedents in the model, Conscientiousness, Extraversion, Honesty-Humility, and grit have been shown to correlate with performance, it is theorized that there is a more direct relationship between job performance and the mediating variables PsyCap and Grit@Work. These two mediators, if our model is significant, will add to the overall variance predicted in job performance and help explain how the independent variables and job performance are related.

Baron and Kenny (1986, p. 1176) state that there are several criteria for a variable to meet in order to be considered as a mediator. I will explain these concepts using PsyCap as an example. PsyCap functions as a mediator in our model if a) variations in PsyCap are explained by the variations in one or more of the independent variables. If PsyCap is not significantly correlated with one of the independent variables, then it is not a mediator for that particular variable. However, it may still significantly correlate with

one or more of the other independent variables. Next, b) variations in PsyCap should significantly explain variations in job performance. Finally, c) the direct path between each independent variable, for example Extraversion, and the dependent variable (job performance) will be either zero or not significant. This would imply that PsyCap is a strong mediator between Extraversion and job performance. However, if the path between Extraversion and job performance is reduced, but is non-zero and significant, it means that PsyCap is functioning as a partial mediator.

The first step in the analysis process is completion of the survey items and gathering of performance data for all participants. Next, the constructs are scored for all seven measures and the data is checked for incomplete results. Once a final database of data is prepared, it will be analyzed using MPLUS software.

**Summary**

The present study offers a robust model that utilizes established personality traits along with newer measures of PsyCap, grit, and Grit@Work. This model will be tested within a business-to-business sales environment with a large base of survey participants. There is a significant opportunity to add to the current extant literature pertaining to personality and the prediction of job performance in a sales environment.

# CHAPTER IV

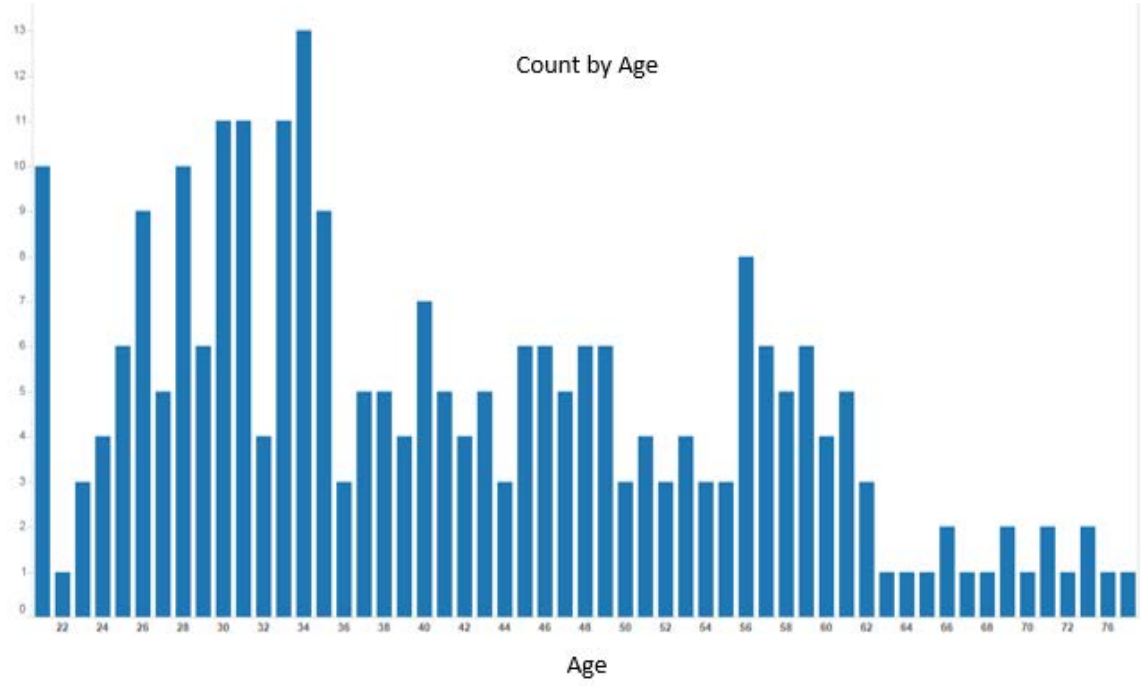
# RESULTS

Data gathering was completed in March, 2016, and this chapter presents the results of the analysis of this data. The present study posed ten hypotheses. Confirmatory factor analysis and structural equation modeling were utilized to test and evaluate the measurement and structural models respectfully.

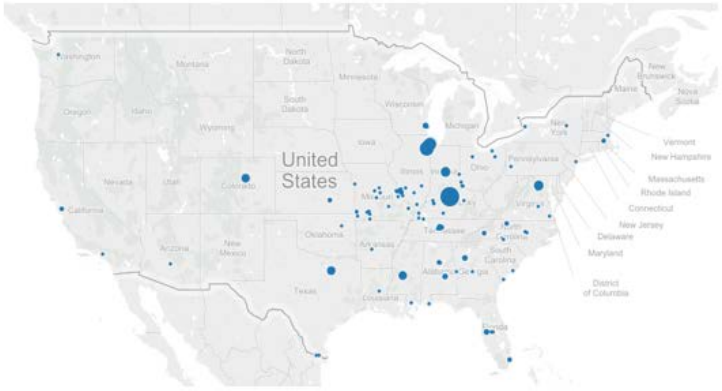
## Data

318 salespeople participated in the research study. 257 surveys were determined to be complete and usable in the measurement model assessment. Of these 257, 192 had a completed supervisor performance evaluation. 154 evaluations were usable and able to be matched with a salesperson using an automated algorithm based on email addresses. The matched data was then visually inspected to verify that the names on both the salesperson and supervisor records matched. If a supervisor evaluation did not exist for a given salesperson or vice-versa, the research participant was contacted in an effort to gain the missing data. Study participant demographics are shown below in Figure 14.

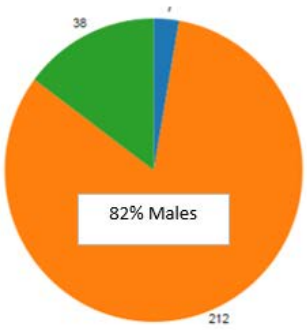
Figure 14: Study Participant Demographics




Participant Geographic Distribution




Male/Female




Income/Salary Distribution

| Quantiles | |
|---|---|
| 100% max. | $600,000 |
| 75% | $184,169 |
| 50% med. | $113,582 |
| 25% | $ 60,675 |
| 0% min. | $ 23,506 |
| | |
| Mean | $137,358 |
| Std Dev | $102,772 |

An evaluation of the measurement model using confirmatory factor analysis (Kline, 2011), discussed in detail below, was completed for each of the constructs. This resulted in the removal of some items during the analysis. After the evaluation of the measurement model and the determination of items to be utilized for each construct, the construct scores were computed. This was completed by averaging the response for Honesty-Humility (14 items), Emotionality (15 items), Extraversion (16 items), Agreeableness (14 items), Conscientiousness (16 items), Openness to Experience (15 items), grit (10 items), Grit@Work (15 items), and psychological capital (24 items).

The performance evaluation provided by the supervisor was scored by averaging the 24-item Role-based Performance Scale to compute the RBPS score. The two questions that evaluate the salesperson in relationship to their goals and to other salespeople within their organization were averaged to compute a Relative Performance Score (RPS). The income (salary and compensation) value was not utilized for the present study because it was only received for approximately 60% of salespeople. However, this data may be utilized in future research efforts.

There is no precedent or literature that supports any particular weights for the two performance variables. A discussion took place prior to analysis of the data with several compensation consultants and human resource professionals that yielded the following formula: performance = .5*RBPS + .5*RPS. During the analysis of the model and hypotheses, several variations of the performance metric—including the addition of salary information when available—were analyzed with no change in conclusions concerning the hypotheses.

In the next section, the psychometrics are shown for each construct. The descriptive data for the constructs along with the zero-order correlations are shown below in Figure 15.

Figure 15. Descriptives and Correlations among Variables

Data used to Assess Measurement Model: Descriptives and Correlations among Variables

| Variables | N | M | SD | H | E | X | A | C | O | Grit | GritW | PsyCap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | 257 | 3.281 | 0.439 | 1.000 | | | | | | | | |
| E | 257 | 3.167 | 0.441 | -0.072 | 1.000 | | | | | | | |
| X | 257 | 3.930 | 0.462 | -0.196 | 0.119 | 1.000 | | | | | | |
| A | 257 | 3.723 | 0.444 | 0.348 | -0.029 | 0.221 | 1.000 | | | | | |
| C | 257 | 3.849 | 0.412 | 0.280 | 0.015 | 0.058 | 0.228 | 1.000 | | | | |
| O | 257 | 3.465 | 0.437 | -0.162 | 0.002 | 0.393 | 0.094 | 0.159 | 1.000 | | | |
| Grit | 257 | 3.802 | 0.463 | 0.193 | 0.333 | 0.182 | 0.167 | 0.546 | 0.116 | 1.000 | | |
| GritW | 257 | 3.816 | 0.435 | 0.166 | 0.311 | 0.187 | 0.210 | 0.489 | 0.134 | 0.846 | 1.000 | |
| PsyCap | 257 | 4.043 | 0.343 | -0.136 | 0.333 | 0.545 | 0.251 | 0.263 | 0.446 | 0.474 | 0.418 | 1.000 |

*Note.* Highlighted cells $p < .05$

Data used to Assess Structural Model: Descriptives and Correlations among Variables

| Variables | N | M | SD | H | E | X | A | C | O | Grit | GritW | PsyCap | P5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | 154 | 3.246 | 0.440 | 1.000 | | | | | | | | | |
| E | 154 | 3.133 | 0.450 | -0.035 | 1.000 | | | | | | | | |
| X | 154 | 3.942 | 0.453 | 0.081 | 0.096 | 1.000 | | | | | | | |
| A | 154 | 3.726 | 0.466 | 0.365 | 0.063 | 0.231 | 1.000 | | | | | | |
| C | 154 | 3.845 | 0.432 | 0.272 | -0.017 | 0.171 | 0.289 | 1.000 | | | | | |
| O | 154 | 3.465 | 0.445 | -0.070 | -0.096 | 0.413 | 0.168 | 0.108 | 1.000 | | | | |
| Grit | 154 | 3.790 | 0.482 | 0.294 | 0.287 | 0.208 | 0.221 | 0.559 | 0.024 | 1.000 | | | |
| GritW | 154 | 3.818 | 0.438 | 0.304 | 0.272 | 0.238 | 0.312 | 0.498 | 0.035 | 0.858 | 1.000 | | |
| PsyCap | 154 | 4.066 | 0.343 | -0.040 | 0.295 | 0.606 | 0.311 | 0.290 | 0.407 | 0.448 | 0.382 | 1.000 | |
| P5 | 154 | 3.589 | 0.884 | 0.002 | 0.104 | 0.033 | -0.027 | 0.038 | -0.116 | 0.163 | 0.102 | 0.292 | 1.000 |

*Note.* Highlighted cells $p < .05$

## Psychometrics: Evaluation of the Measurement Model

### *Determination of Measurement Model Acceptable Criteria*

Before analyzing the measurement model, research was conducted into the much-debated topic of fit statistics. The goal of this effort was to establish minimal acceptable levels of the various fit statistics in order to determine if each measurement model was

acceptable. MPLUS software v 7.31 was utilized to produce both CFA for the measurement model and the significance testing for the ten hypotheses. For the measurement model, the fit statistics Chi-Square ($\chi^2$), comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA) were utilized.

Chi-square is frequently used to assess whether the sample covariance matrix equals the population covariance matrix. Ideally, the test statistic is greater than the p-value (usually 0.05) and the null hypothesis is rejected. A significant Chi-square is interpreted as indicating the lack of a satisfactory model fit (Barrett, 2007, p. 816). However, there are many limitations to this test statistic. For large sample sizes and in the presence of any type of deviation from normality, the statistic is often significant and thus indicates a lack of fit. As a result of the challenges with the Chi-square statistic, several other statistics have been developed.

The Comparative Fit Index (Bentler, 1990, p. 238) provides insight even when the sample size is small. Values for CFI range from 0.0 to 1.0. The statistic was initially considered acceptable when >= 0.90. However, more recent research by Hu and Bentler (1999, p. 27) suggests that CFI >= 0.95 indicates good model fit.

The root mean square residual (RMR) and standardized root mean square residual (SRMR) compare the sample covariance residuals to the hypothesized covariance model and take the square root of the difference. Hu and Bentler (1999, p. 26) suggest that values < .08 are acceptable.

The root mean square error of approximation (RMSEA) was developed by Stieger (1990, p. 177). Often considered one of the more useful fit indices, it is instructional to look at the formula for this index:

$$RMSEA = (\chi^2 - df)^{\wedge.5} / ([df * (N-1)]^{\wedge.5})$$

Where df = degrees of freedom and N = sample size.

A review of MacCullum, Browne, and Sugawara (1996, p. 144), Hu and Bentler (1999, p. 4), and other commentary suggests the following evaluation criteria for RMSEA:

Close fit (RMSEA = 0.0 to 0.05)
Fair fit (RMSEA = 0.05 to 0.08)
Mediocre fit (RMSEA = .08 to 0.10)
Poor fit (RMSEA > 0.10)

The final assessment on each measurement model will utilize the RMSEA statistic and the nomenclature outlined above.

*Honesty Humility.*

Honesty-Humility was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.70$). A confirmatory factor analysis analyzed the construct by loading each of the sub-trait items (sincerity, fairness, greed avoidance, modesty) onto their respective trait and then loading the four sub-traits onto the Honesty-Humility construct. The results yielded the following:

$$\chi^2_{100} = 228.58 (p = 0.0000), CFI=.763, RMSEA = .071, SRMR = .074$$

This measurement model for Honesty-Humility is acceptable with fair fit. The factor loadings indicated two items with very low loadings (see Table 16). The factor structure was reduced by removing these two items. Given that sixteen items were used to measure

Honesty-Humility, the remaining 14 items should be sufficient to measure the construct.

The model fit after reduction showed an improvement:

$$\chi^2_{73} = 160.10 \ (p = 0.0000), \text{CFI}=.822, \text{RMSEA} = .068, \text{SRMR} = .070$$

Figure 16. Honesty-Humility: Factor Structure and Cronbach Alpha Before and After Reduction

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| HS By | | |
| HS8 | 0.293 | - |
| HS7 | 0.531 | 0.517 |
| HS6 | 0.365 | 0.318 |
| HS5 | 0.431 | 0.484 |
| | | |
| HG By | | |
| HG8R | 0.418 | 0.417 |
| HG7R | 0.600 | 0.599 |
| HG9R | 0.459 | 0.457 |
| HG4R | 0.301 | 0.306 |
| | | |
| HM By | | |
| HM6 | 0.411 | 0.397 |
| HM5 | 0.747 | 0.762 |
| HM2 | 0.421 | 0.427 |
| HM4R | 0.558 | 0.551 |
| | | |
| HF By | | |
| HF1R | 0.058 | - |
| HF7 | 0.742 | 0.741 |
| HF4R | 0.280 | 0.280 |
| HF8R | 0.791 | 0.793 |
| | | |
| HH by | | |
| HS | 0.844 | 0.860 |
| HG | 0.513 | 0.545 |
| HM | 0.890 | 0.850 |
| HF | 0.513 | 0.519 |

| Item | **Field Study** Cronbach's Alpha (BEFORE) | **Field Study** Cronbach's Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.7044 | 0.7094 |
| | | |
| HS8 | 0.7026 | - |
| HS7 | 0.6871 | 0.6940 |
| HS6 | 0.6978 | 0.7065 |
| HS5 | 0.6902 | 0.6934 |
| HG8R | 0.7083 | 0.7120 |
| HG7R | 0.6841 | 0.6901 |
| HG9R | 0.6962 | 0.6993 |
| HG4R | 0.6936 | 0.6981 |
| HM6 | 0.6921 | 0.7007 |
| HM5 | 0.6681 | 0.6729 |
| HM2 | 0.6905 | 0.6944 |
| HM4R | 0.6799 | 0.6879 |
| HF1R | 0.7098 | - |
| HF7 | 0.6770 | 0.6827 |
| HF4R | 0.6946 | 0.7006 |
| HF8R | 0.6736 | 0.6782 |

HS8: "Other people tell me that I am a sincere person"

HF1R: "In general, if I can get away with it, I will take something from work"

*Emotionality.*

Emotionality was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.77$). A confirmatory factor analysis considered the construct by loading each of the sub-trait items (fearfulness, anxiety, dependence, sentimentality) onto their respective traits and then loading the four sub-traits onto the Emotionality construct (see Table 17). The results yielded the following:

$$\chi^2_{100} = 191.26 \ (p = 0.000), \text{CFI}=.873, \text{RMSEA} = .060, \text{SRMR} = .067$$

The measurement model for Emotionality is acceptable with fair fit. The analysis of the factor loadings indicated one item with a 0.235 loading. After reviewing this item, which stated, "I do not need the support of the people I work with," it was determined that in the context of a team environment where team work is critical, as found in the study population, this question was probably not perceived as intended. The item was removed. The resulting model fit parameters remained acceptable and the Cronbach alpha increased to 0.78:

$$\chi^2_{86} = 170.20 \ (p = 0.000), \text{CFI}=.880, \text{RMSEA} = .062, \text{SRMR} = .067$$

Figure 17. Emotionality: Factor Structure and Cronbach Alpha Before and After Reduction

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| EF By | | |
| EF5 | 0.478 | 0.477 |
| EF6R | 0.457 | 0.458 |
| EF7R | 0.591 | 0.589 |
| EF8R | 0.399 | 0.402 |
| | | |
| ED By | | |
| ED9R | 0.716 | 0.727 |
| ED2 | 0.235 | - |
| ED5R | 0.459 | 0.456 |
| ED4R | 0.765 | 0.749 |
| | | |
| ES By | | |
| ES8R | 0.458 | 0.456 |
| ES9R | 0.419 | 0.418 |
| ES7R | 0.648 | 0.648 |
| ES6R | 0.730 | 0.733 |
| | | |
| EA By | | |
| EA7R | 0.531 | 0.531 |
| EA2R | 0.744 | 0.746 |
| EA5R | 0.454 | 0.454 |
| EA9R | 0.670 | 0.668 |
| | | |
| E By | | |
| EF | 0.655 | 0.659 |
| ED | 0.822 | 0.832 |
| ES | 0.530 | 0.526 |
| EA | 0.711 | 0.711 |

| Item | **Field Study** Cronbach's Alpha (BEFORE) | **Field Study** Cronbach's Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.7726 | 0.7799 |
| | | |
| EF5 | 0.7632 | 0.7712 |
| EF6R | 0.7654 | 0.7727 |
| EF7R | 0.7621 | 0.7689 |
| EF8R | 0.7740 | 0.7807 |
| ED9R | 0.7471 | 0.7557 |
| ED2 | 0.7799 | - |
| ED5R | 0.7625 | 0.7716 |
| ED4R | 0.7414 | 0.7513 |
| ES8R | 0.7587 | 0.7673 |
| ES9R | 0.7611 | 0.7702 |
| ES7R | 0.7679 | 0.7764 |
| ES6R | 0.7654 | 0.7715 |
| EA7R | 0.7593 | 0.7674 |
| EA2R | 0.7499 | 0.7576 |
| EA5R | 0.7641 | 0.7728 |
| EA9R | 0.7512 | 0.7585 |

ED2 "I do not need the support of the people I work with"

*Extraversion.*

Extraversion was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.86$). A confirmatory factor analysis considered the construct by loading each of the sub-trait items (social self-esteem, social boldness,

sociability, liveliness) onto their respective sub-traits and then loading the four sub-traits onto the Extraversion construct (see Table 18). The results yielded the following:

$$\chi^2_{100} = 269.81 \ (p = 0.000), \text{CFI}=.884, \text{RMSEA} = .081, \text{SRMR} = .064$$

The measurement model for Extraversion is acceptable with mediocre fit. Factor loadings and Cronbach Alpha were acceptable. A review of all survey items in the context of the study participants did not find any potential problems with item interpretation by the respondents. However, one note of warning came from the MPLUS CFA that was performed. The XE (Social Self-Esteem) sub-trait had a negative residual variance (non-standardized) of -.031 with the overall Extraversion construct. This can occur when 100% of the variance in a measured variable is estimated. Dillon, Kumar, and Mulani (1987, p. 128) attribute such negative residual variance cases, when the confidence interval for the estimate covers zero, to sampling variation. Given that the 95% confidence interval for this variance (0.001 to -0.062) contains zero, the model was determined to be acceptable. The negative residual variance was eliminated by the removal of one item. However, loading factors and model fit statistics were not significantly different, thus supporting the acceptance of the model as defined.

Figure 18. Extraversion: Factor Structure and Cronbach Alpha

| Item | Field Study Standardized Factor Loading (BEFORE) |
|---|---|
| XS By | |
| XS8 | 0.716 |
| XS9 | 0.744 |
| XS2 | 0.774 |
| XS6 | 0.575 |
| | |
| XL By | |
| XL5 | 0.693 |
| XL4 | 0.667 |
| XL7 | 0.737 |
| XL1 | 0.456 |
| | |
| XB By | |
| XB1R | 0.467 |
| XB7 | 0.837 |
| XB4 | 0.600 |
| XB9 | 0.508 |
| | |
| XE By | |
| XE10 | 0.760 |
| XE5 | 0.686 |
| XE1 | 0.627 |
| XE9 | 0.512 |
| | |
| X By | |
| XS | 0.866 |
| XL | 0.532 |
| XB | 0.897 |
| XE | 1.063 |

| Item | Field Study Cronbach's Alpha (BEFORE) |
|---|---|
| Entire Set | 0.8643 |
| | |
| XS8 | 0.8540 |
| XS9 | 0.8521 |
| XS2 | 0.8478 |
| XS6 | 0.8561 |
| XL5 | 0.8639 |
| XL4 | 0.8579 |
| XL7 | 0.8596 |
| XL1 | 0.8611 |
| XB1R | 0.8697 |
| XB7 | 0.8491 |
| XB4 | 0.8561 |
| XB9 | 0.8630 |
| XE10 | 0.8501 |
| XE5 | 0.8501 |
| XE1 | 0.8536 |
| XE9 | 0.8589 |

NOTE: Negative residual variance on XE of -0.130 (95% CI 0.001 to -0.062)

*Agreeableness.*

Agreeableness was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.80$). A confirmatory factor analysis considered the construct by loading each of the sub-trait items (forgiveness, gentleness, flexibility, patience) onto their respective traits and then loading the four sub-traits onto the Agreeableness construct (see Table 19). The results yielded the following:

$$\chi^2_{100} = 181.04 \ (p = 0.000), \text{CFI} = .917, \text{RMSEA} = .056, \text{SRMR} = .058$$

The measurement model for Agreeableness is acceptable with fair fit. However, two items had very low factor loadings. These items were reviewed in light of the study population, and it was determined that they could elicit responses not directly related to the intention of the item. AFL7 stated, "At work, I believe that cooperation is better than competition." For the salespeople surveyed, intense cooperation is required between them and their support team. This team structure is particularly acute within the property casualty insurance brokerage industry. However, between salespeople within the same industry and within the same firm, intense competition exists. Therefore, depending on how the reader interpreted the question, the responses could be dramatically different. This most likely led to the poor factor loading for this question and it was removed. The other item, AF6, stated, "I work hard to reestablish relationships where trust has been broken." Again, context defines this item. For insurance producers (salespeople), building trust in the long-term sales cycle with potential clients is critical. There is a business motivation to repair any damage that occurs in this relationship that goes beyond motivating factors that arise

from personality traits. This item was removed. The resulting model fit parameters with the retained 14 items remained acceptable:

$$\chi^2_{73} = 139.40 \ (p = 0.000), \text{CFI} = .929, \text{RMSEA} = .059, \text{SRMR} = .056$$

Figure 19. Agreeableness: Factor Structure and Cronbach Alpha Before and After Reduction

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| AFL By | | |
| AFL4 | 0.339 | 0.351 |
| AFL10 | 0.615 | 0.635 |
| AFL8 | 0.593 | 0.575 |
| AFL7 | 0.200 | - |
| AF By | | |
| AF10 | 0.731 | 0.733 |
| AF1 | 0.849 | 0.846 |
| AF2 | 0.697 | 0.700 |
| AF6 | 0.352 | - |
| AP By | | |
| AP8 | 0.834 | 0.834 |
| AP10 | 0.737 | 0.737 |
| AP3 | 0.492 | 0.491 |
| AP2 | 0.737 | 0.737 |
| AG By | | |
| AG1 | 0.603 | 0.607 |
| AG5 | 0.486 | 0.482 |
| AG8 | 0.499 | 0.497 |
| AG6 | 0.651 | 0.652 |
| A By | | |
| AFL | 0.477 | 0.461 |
| AF | 0.573 | 0.564 |
| AP | 0.817 | 0.829 |
| AG | 0.769 | 0.761 |

| Item | **Field Study** Cronbach's Alpha (BEFORE) | **Field Study** Cronbach's Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.8033 | 0.8100 |
| AFL4 | 0.8120 | 0.8214 |
| AFL10 | 0.7997 | 0.8072 |
| AFL8 | 0.7988 | 0.8066 |
| AFL7 | 0.8117 | - |
| AF10 | 0.7859 | 0.7948 |
| AF1 | 0.7839 | 0.7917 |
| AF2 | 0.7877 | 0.7964 |
| AF6 | 0.8016 | - |
| AP8 | 0.7815 | 0.7859 |
| AP10 | 0.7783 | 0.7835 |
| AP3 | 0.7873 | 0.7943 |
| AP2 | 0.7855 | 0.7919 |
| AG1 | 0.7904 | 0.7965 |
| AG5 | 0.7919 | 0.8001 |
| AG8 | 0.7945 | 0.8021 |
| AG6 | 0.7896 | 0.7977 |

AFL7: "At work, I believe that cooperation is better than competition"
AF6: "I work hard to reestablish relationships where trust has been broken"

*Conscientiousness*

Conscientiousness was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.82$). A confirmatory factor analysis considered the construct by loading each of the sub-trait items (organization, diligence, perfectionism, prudence) onto their respective traits and then loading the four sub-traits onto the Conscientiousness construct (see Table 20). The results yielded the following:

$$\chi^2_{100} = 212.95 \ (p = 0.000), \text{CFI} = .912, \text{RMSEA} = .066, \text{SRMR} = .069$$

These results indicate fair fit. A review of the factor loadings and all items used to assess conscientiousness was determined to be acceptable.

Figure 20. Conscientiousness: Factor Structure and Cronbach Alpha

| Item | Field Study Standardized Factor Loading (BEFORE) |
|---|---|
| CPR By | |
| CPR12 | 0.619 |
| CPR7 | 0.697 |
| CPR6 | 0.343 |
| CPR11 | 0.417 |
| | |
| CO By | |
| CO1 | 0.633 |
| CO9 | 0.801 |
| CO2 | 0.848 |
| CO5 | 0.429 |
| | |
| CD By | |
| CD11 | 0.684 |
| CD6 | 0.718 |
| CD9 | 0.821 |
| CD3 | 0.629 |
| | |
| CP By | |
| CP3 | 0.868 |
| CP8 | 0.841 |
| CP9 | 0.416 |
| CP5 | 0.433 |
| | |
| C By | |
| CPR | 0.908 |
| CO | 0.740 |
| CD | 0.326 |
| CP | 0.718 |

| Item | Field Study Cronbach's Alpha (BEFORE) |
|---|---|
| Entire Set | 0.8173 |
| | |
| CPR12 | 0.8020 |
| CPR7 | 0.7980 |
| CPR6 | 0.8177 |
| CPR11 | 0.8140 |
| CO1 | 0.8050 |
| CO9 | 0.8014 |
| CO2 | 0.7952 |
| CO5 | 0.8081 |
| CD11 | 0.8131 |
| CD6 | 0.8201 |
| CD9 | 0.8106 |
| CD3 | 0.8083 |
| CP3 | 0.7921 |
| CP8 | 0.7976 |
| CP9 | 0.8166 |
| CP5 | 0.8140 |

*Openness to Experience.*

Openness to Experience was measured with a 16-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.78$). A confirmatory factor analysis considered the construct by loading each of the sub-trait items (aesthetic appreciation, inquisitiveness, creativity, unconventionality) onto their respective traits and then loading the four sub-traits

onto the Openness to Experience construct. See Table 21. The results yielded the following:

$$\chi^2_{100} = 245.98 \ (p = 0.000), \text{CFI} = .864, \text{RMSEA} = .075, \text{SRMR} = .072$$

The measurement model for Openness to Experience is acceptable with fair fit. However, a review of the factor loadings showed one factor with a loading estimate of 0.297. This item, OA8, stated, "I prefer working in an environment that is visually appealing." This item may not measure the aesthetic appreciation sub-trait in the same manner as the other three items in this sub group. It reflects a work setting preference in a modern world in which the focus on workplace aesthetics is much greater than it was in the past. The item was removed and the resulting model fit parameters remained acceptable:

$$\chi^2_{86} = 209.14 \ (p = 0.000), \text{CFI} = .881, \text{RMSEA} = .075, \text{SRMR} = .070$$

Figure 21. Openness to Experience: Factor Structure and Cronbach Alpha

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| OC By | | |
| OC1 | 0.543 | 0.543 |
| OC6 | 0.808 | 0.807 |
| OC3 | 0.546 | 0.547 |
| OC2 | 0.698 | 0.699 |
| | | |
| OA By | | |
| OA9 | 0.519 | 0.520 |
| OA4 | 0.793 | 0.766 |
| OA8 | 0.297 | - |
| OA3 | 0.777 | 0.807 |
| | | |
| OU By | | |
| OU9 | 0.663 | 0.663 |
| OU2 | 0.763 | 0.763 |
| OU10 | 0.708 | 0.708 |
| OU8 | 0.588 | 0.589 |
| | | |
| OI By | | |
| OI5 | 0.740 | 0.739 |
| OI3 | 0.408 | 0.408 |
| OI2 | 0.796 | 0.797 |
| OI4 | 0.379 | 0.378 |
| | | |
| O By | | |
| OC | 0.807 | 0.794 |
| OA | 0.413 | 0.397 |
| OU | 0.527 | 0.539 |
| OI | 0.495 | 0.499 |

| Item | **Field Study** Cronbach's Alpha (BEFORE) | **Field Study** Cronbach's Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.7834 | 0.7799 |
| | | |
| OC1 | 0.7723 | 0.7697 |
| OC6 | 0.7567 | 0.7527 |
| OC3 | 0.7738 | 0.7701 |
| OC2 | 0.7664 | 0.7628 |
| OA9 | 0.7752 | 0.7726 |
| OA4 | 0.7778 | 0.7774 |
| OA8 | 0.7805 | - |
| OA3 | 0.7726 | 0.7701 |
| OU9 | 0.7651 | 0.7608 |
| OU2 | 0.7701 | 0.7658 |
| OU10 | 0.7745 | 0.7698 |
| OU8 | 0.7650 | 0.7598 |
| OI5 | 0.7765 | 0.7741 |
| OI3 | 0.7761 | 0.7730 |
| OI2 | 0.7732 | 0.7704 |
| OI4 | 0.7782 | 0.7761 |

OA8 "I prefer working in an environment that is visually appealing"

*Grit.*

Grit was measured with a 12-item scale: six measured consistency of interest (COI) and six measured perseverance of effort (POE). Internal consistency was measured using Cronbach alpha for both consistency of interest ($\alpha = 0.73$) and perseverance of effort ($\alpha = 0.62$). Cronbach alpha for grit as a 12-item scale was $\alpha = 0.74$. A confirmatory factor analysis was attempted with six items loading onto each of the two sub-traits and then loading the two sub-traits onto grit. This model would not converge. Therefore, an analysis was conducted first on each of the sub-traits COI and POE. The resulting model fit statistics were:

COI $\chi^2_9 = 20.02$ ($p = 0.018$), CFI= .962, RMSEA = .069, SRMR = .040

POE $\chi^2_9 = 19.10$ ($p = 0.024$), CFI= .942, RMSEA = .066, SRMR = .037

The measurement models for the two sub-traits of grit are acceptable with fair fit. However, the two sub-traits would not converge onto the single theoretical construct of grit. A review of the factor loadings within each sub-trait was conducted. One item in each sub-trait had a substantially lower factor loading than the other items. For COI, GCOI6 stated "I become interested in new pursuits every few months." The salespeople surveyed commonly use language related to new pursuits in order to describe new sales targets. Becoming interested in new pursuits every few months is intended to be a reverse question in this survey where a strong response would indicate low consistency of interest. However, in the sales environment, the reader of the item could easily interpret this as a positive item that reflects their ongoing interest in pursuing new sales leads. The item was removed. For POE, the item GPOE2 states, "Setbacks don't discourage me." This item

had a factor loading of .288. The item was removed. The resulting model fit parameters for COI and POE remained acceptable with COI improving to a close fit:

$$\text{COI } \chi^2_5 = 7.85 \ (p = 0.165), \text{ CFI= .989, RMSEA = .047, SRMR = .026}$$

$$\text{POE } \chi^2_5 = 14.23 \ (p = 0.014), \text{ CFI= .942, RMSEA = .085, SRMR = .034}$$

A new confirmatory factor analysis of grit was completed using the five factor COI and POE models and loading COI and POE onto grit. This model was successful and produced the following fit statistics:

$$\text{GRIT } \chi^2_{33} = 71.65 \ (p = 0.000), \text{ CFI= .915, RMSEA = .068, SRMR = .068}$$

This revised measurement model for grit is acceptable with fair fit.

Table 22 summarizes the various parameters and analysis associated with the grit construct and the two sub-traits COI and POE.

Figure 22. Grit, Grit-COI, Grit-POE Analysis Results

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| COI By | | |
| GCOI1 | 0.518 | 0.528 |
| GCOI2 | 0.849 | 0.833 |
| GCOI3 | 0.574 | 0.588 |
| GCOI4 | 0.605 | 0.615 |
| GCOI5 | 0.461 | 0.448 |
| GCOI6 | 0.351 | - |
| | | |
| POE By | | |
| GPOE1 | 0.389 | 0.369 |
| GPOE2 | 0.288 | - |
| GPOE3 | 0.551 | 0.537 |
| GPOE4 | 0.537 | 0.540 |
| GPOE5 | 0.604 | 0.619 |
| GPOE6 | 0.580 | 0.587 |
| | | |
| COI By | | |
| GCOI1 | - | 0.532 |
| GCOI2 | - | 0.811 |
| GCOI3 | - | 0.603 |
| GCOI4 | - | 0.625 |
| GCOI5 | - | 0.452 |
| GCOI6 | - | - |
| POE By | | |
| GPOE1 | - | 0.425 |
| GPOE2 | - | - |
| GPOE3 | - | 0.556 |
| GPOE4 | - | 0.523 |
| GPOE5 | - | 0.594 |
| GPOE6 | - | 0.571 |
| GRIT By | | |
| COI | - | 0.459 |
| POE | - | 0.730 |

| Item | **Field Study** Cronbach Alpha (BEFORE) | **Field Study** Cronbach Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.7387 | 0.7360 |
| | | |
| GCOI1 | 0.7159 | 0.7122 |
| GCOI2 | 0.6880 | 0.6824 |
| GCOI3 | 0.7043 | 0.6962 |
| GCOI4 | 0.7054 | 0.6983 |
| GCOI5 | 0.7177 | 0.7213 |
| GCOI6 | 0.7394 | - |
| GPOE1 | 0.7108 | 0.7063 |
| GPOE2 | 0.7375 | - |
| GPOE3 | 0.7257 | 0.7235 |
| GPOE4 | 0.7366 | 0.7345 |
| GPOE5 | 0.7340 | 0.7322 |
| GPOE6 | 0.7325 | 0.7307 |
| | | |
| COI Only | 0.7306 | 0.7376 |
| | | |
| GCOI1 | 0.7037 | 0.7087 |
| GCOI2 | 0.6265 | 0.6267 |
| GCOI3 | 0.6854 | 0.6867 |
| GCOI4 | 0.6886 | 0.6942 |
| GCOI5 | 0.7043 | 0.7336 |
| GCOI6 | 0.7376 | - |
| | | |
| POE Only | 0.6246 | 0.6487 |
| | | |
| GPOE1 | 0.5881 | 0.6524 |
| GPOE2 | 0.6487 | - |
| GPOE3 | 0.5582 | 0.5854 |
| GPOE4 | 0.5728 | 0.5897 |
| GPOE5 | 0.5550 | 0.5688 |
| GPOE6 | 0.5688 | 0.5836 |

Overall, the grit construct presented an interesting challenge in this study. As a result, additional analysis beyond what was required for assessment of the measurement model was completed. A discussion of the resulting observations is provided in the next Chapter.

*Grit@Work.*

Grit@Work was measured with a 16-item scale, and it presented the same challenge as grit. Eight items measured consistency of interest (COI) at Work and eight items measured perseverance of effort (POE) at Work. Internal consistency was measured using Cronbach alpha for both consistency of interest at Work ($\alpha = 0.86$) and perseverance of effort at Work ($\alpha = 0.76$). Cronbach alpha for Grit@Work as a 16-item scale was $\alpha = 0.83$. A confirmatory factor analysis was attempted with eight items loading onto each of the two sub-traits and then loading the two sub-traits onto Grit@Work. This model would not converge. Therefore, an analysis was conducted of each of the sub-traits COI@Work and POE@Work. The resulting model fit statistics were:

COI@Work $\chi^2_{20} = 52.93$ ($p = 0.000$), CFI= .958, RMSEA = .080, SRMR = .040

POE@Work $\chi^2_{20} = 120.92$ ($p = 0.000$), CFI= .834, RMSEA = .140, SRMR = .060

The measurement model for COI@Work is acceptable with mediocre fit. The measurement model for POE@Work is a poor fit. The factor loadings for COI@Work were reviewed and also were acceptable, however POE@Work did not show as strong fit statistics. A review of the factor loadings for POE indicated one item with a very low loading of .206. This item, GWPOE2C, was similar to the POE item within grit that had a low loading factor. It stated, "I am not easily discouraged at work." A review of this item along with the similar grit item indicates that a significant number of people may have misread this question as "I am easily discouraged at work." Even though some indicated strong perseverance on other items, specific cases were found in which they reversed their typical response on this question to indicate an opposite tendency. This item was removed.

All COI@Work items were retained. The resulting model fit parameters for POE@Work remained a poor fit:

POE@Work $\chi^2_{14} = 103.02$ ($p = 0.000$), CFI=.849, RMSEA = .157, SRMR = .058

Table 23 summarizes the various parameters and analysis associated with the GRIT@Work construct and the two sub-traits Grit@COI and Grit@POE.

Figure 23. Grit@Work, COI@Work, POE@Work Analysis Results

| Item | **Field Study** Standardized Factor Loading (BEFORE) | **Field Study** Standardized Factor Loading (AFTER) |
|---|---|---|
| COI@Work By | | |
| GWCOI2A | 0.808 | n/a |
| GWCOI1B | 0.712 | n/a |
| GWCOI2B | 0.842 | n/a |
| GWCOI3B | 0.677 | n/a |
| GWCOI4B | 0.375 | n/a |
| GWCOI1C | 0.548 | n/a |
| GWCOI5C | 0.603 | n/a |
| GWCOI6C | 0.672 | n/a |
| | | |
| POE@Work By | | |
| GWPOE3A | 0.620 | 0.615 |
| GWPOE4A | 0.732 | 0.731 |
| GWPOE1B | 0.456 | 0.452 |
| GWPOE3B | 0.769 | 0.770 |
| GWPOE4B | 0.811 | 0.817 |
| GWPOE5B | 0.486 | 0.485 |
| GWPOE2C | 0.206 | - |
| GWPOE6C | 0.413 | 0.407 |
| | | |
| COI@Work By | | |
| GWCOI2A | - | 0.808 |
| GWCOI1B | - | 0.711 |
| GWCOI2B | - | 0.840 |
| GWCOI3B | - | 0.679 |
| GWCOI4B | - | 0.376 |
| GWCOI1C | - | 0.551 |
| GWCOI5C | - | 0.600 |
| GWCOI6C | - | 0.674 |
| POE@Work By | | |
| GWPOE3A | - | 0.617 |
| GWPOE4A | - | 0.731 |
| GWPOE1B | | 0.458 |
| GWPOE3B | | 0.769 |
| GWPOE4B | | 0.814 |
| GWPOE5B | | 0.487 |
| GWPOE2C | | - |
| GWPOE6C | | 0.408 |
| Grit@Work By | | |
| COI@Work | | 0.288 |
| POE@Work | | 0.637 |

| Item | **Field Study** Cronbach Alpha (BEFORE) | **Field Study** Cronbach Alpha (AFTER) |
|---|---|---|
| Entire Set | 0.8302 | 0.8312 |
| | | |
| GWCOI2A | 0.8079 | 0.8079 |
| GWCOI1B | 0.8113 | 0.8124 |
| GWCOI2B | 0.8074 | 0.8075 |
| GWCOI3B | 0.8095 | 0.8093 |
| GWCOI4B | 0.8288 | 0.8295 |
| GWCOI1C | 0.8147 | 0.8158 |
| GWCOI5C | 0.8214 | 0.8221 |
| GWCOI6C | 0.8096 | 0.8102 |
| GWPOE3A | 0.8267 | 0.8284 |
| GWPOE4A | 0.8255 | 0.8272 |
| GWPOE1B | 0.8235 | 0.8249 |
| GWPOE3B | 0.8267 | 0.8280 |
| GWPOE4B | 0.8254 | 0.8265 |
| GWPOE5B | 0.8278 | 0.8298 |
| GWPOE2C | 0.8312 | - |
| GWPOE6C | 0.8299 | 0.8324 |
| | | |
| COI@Work Only | 0.8602 | 0.8602 |
| | | |
| GWCOI2A | 0.8306 | 0.8306 |
| GWCOI1B | 0.8381 | 0.8381 |
| GWCOI2B | 0.8277 | 0.8277 |
| GWCOI3B | 0.8416 | 0.8416 |
| GWCOI4B | 0.8681 | 0.8681 |
| GWCOI1C | 0.8514 | 0.8514 |
| GWCOI5C | 0.8481 | 0.8481 |
| GWCOI6C | 0.8377 | 0.8377 |
| | | |
| POE@Work Only | 0.7640 | 0.7955 |
| | | |
| GWPOE3A | 0.7326 | 0.7716 |
| GWPOE4A | 0.7189 | 0.7549 |
| GWPOE1B | 0.7443 | 0.7866 |
| GWPOE3B | 0.7189 | 0.7486 |
| GWPOE4B | 0.7116 | 0.7387 |
| GWPOE5B | 0.7453 | 0.7925 |
| GWPOE2C | 0.7955 | - |
| GWPOE6C | 0.7435 | 0.7902 |

*Psychological Capital.*

Psychological capital was measured with a 24-item scale. Internal consistency was measured using Cronbach alpha ($\alpha = 0.86$). A confirmatory factor analysis confirmed the construct by loading each of the sub-trait items (hope, efficacy, resiliency, optimism) onto their respective sub-traits and then loading the four sub-traits onto the psychological capital construct (see Table 24). The results yielded the following:

$$\chi^2_{248} = 546.42 \ (p = 0.000), \text{CFI}=.824, \text{RMSEA} = .068, \text{SRMR} = .069$$

This measurement model for psychological capital is acceptable with fair fit. Because of the key role that psychological capital plays in the present study, it was decided not to remove any of the items. The survey instrument utilized the 24-item Psychological capital Questionnaire (PCQ) (Luthans, Youssef, & Avolio, 2006, p. 237). This has been used extensively in other studies, and in order to contribute to the body of knowledge on psychological capital the survey instrument was not modified. One factor, PCAP06 had a factor of .277. PCAP06 was the last question in the 148 item survey and stated, "I approach this job as if 'every cloud has a silver lining.'" The abstract nature of this statement may be the reason for the lower loading factor. The mental fatigue of the survey participants by the time they reached the 148$^{th}$ item may have also been a contributing factor. However, the item was retained for consistency with other research studies utilizing psychological capital.

Figure 24. Psychological Capital Analysis Results

| Item | Field Study Standardized Factor Loading (BEFORE) |
|---|---|
| PSYCAPH | |
| PCAPH1 | 0.480 |
| PCAPH2 | 0.480 |
| PCAPH3 | 0.634 |
| PCAPH4 | 0.401 |
| PCAPH5 | 0.724 |
| PCAPH6 | 0.347 |
| | |
| PSYCAPE | |
| PCAPE1 | 0.506 |
| PCAPE2 | 0.544 |
| PCAPE3 | 0.800 |
| PCAPE4 | 0.788 |
| PCAPE5 | 0.702 |
| PCAPE6 | 0.748 |
| | |
| PSYCAPR | |
| PCAPR1R | 0.407 |
| PCAPR2 | 0.435 |
| PCAPR3 | 0.364 |
| PCAPR4 | 0.537 |
| PCAPR5 | 0.513 |
| PCAPR6 | 0.439 |
| | |
| PSYCAPO | |
| PCAPO1 | 0.646 |
| PCAPO2R | 0.580 |
| PCAPO3 | 0.739 |
| PCAPO4 | 0.609 |
| PCAPO5R | 0.607 |
| PCAPO6 | 0.277 |
| | |
| PSYCAP BY | |
| PSYCAPH | 0.896 |
| PSYCAPE | 0.653 |
| PSYCAPR | 0.923 |
| PSYCAPO | 0.693 |

| Item | Field Study Cronbach's Alpha (BEFORE) |
|---|---|
| Entire Set | 0.8631 |
| | |
| PCAPH1 | 0.8590 |
| PCAPH2 | 0.8596 |
| PCAPH3 | 0.8555 |
| PCAPH4 | 0.8590 |
| PCAPH5 | 0.8529 |
| PCAPH6 | 0.8657 |
| PCAPE1 | 0.8568 |
| PCAPE2 | 0.8580 |
| PCAPE3 | 0.8551 |
| PCAPE4 | 0.8542 |
| PCAPE5 | 0.8549 |
| PCAPE6 | 0.8525 |
| PCAPR1R | 0.8596 |
| PCAPR2 | 0.8602 |
| PCAPR3 | 0.8620 |
| PCAPR4 | 0.8582 |
| PCAPR5 | 0.8587 |
| PCAPR6 | 0.8592 |
| PCAPO1 | 0.8565 |
| PCAPO2R | 0.8586 |
| PCAPO3 | 0.8546 |
| PCAPO4 | 0.8576 |
| PCAPO5R | 0.8563 |
| PCAPO6 | 0.8664 |

## Summary of Measurement Model Assessment

Overall, the measurement model was found to be acceptable. Minor item reduction was required for all items except Extraversion, Conscientiousness, and PsyCap. The negative residual variance, which initially occurred with Extraversion, was determined not to be a factor. The poor performance of grit as a composite construct of perseverance of effort and consistency of interest is discussed in greater detail in the next chapter. The measurement model functions sufficiently to support the structural assessment that follows.

## Structural Model: Hypothesis Testing

Structural equation modeling was utilized to estimate the standardized path values and their significance for the proposed model. The model, shown previously in Figure 1, is shown below.

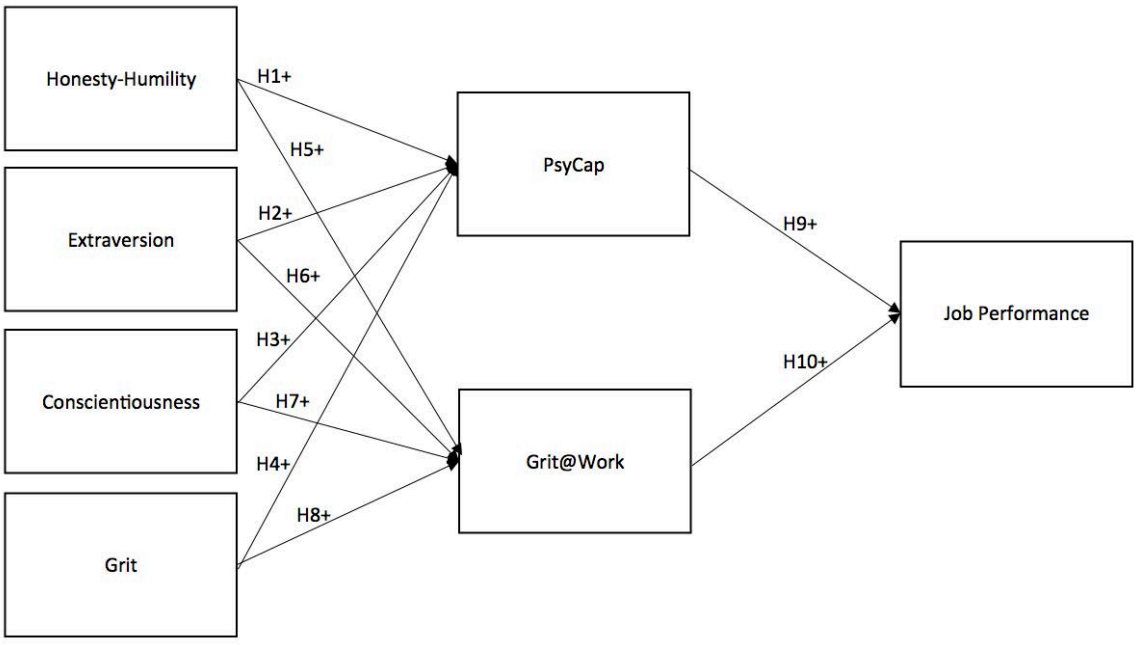



Figure 25 shows the fit statistics for the proposed model.

Figure 25. Fit Statistics for Proposed Model with and without Control Variables

Fit Statistics: Model as Proposed

| Parameter/Test | Value/Result |
|---|---|
| $X^2$ | 7.766 (p=.17, dof = 5) |
| CFI | 0.991 |
| RMSEA | .060 (90% CI .000 - .137) |
| SRMR | 0.027 |

Fit Statistics: Model with Control Variables

| Parameter/Test | Value/Result |
|---|---|
| $X^2$ | 41.033 (p <.05, dof = 11) |
| CFI | 0.916 |
| RMSEA | .133 (90% CI .091 - .178) |
| SRMR | 0.045 |

The model generates acceptable values of CFI and SRMR. RMSEA indicates fair fit.

Statistical tests for each of the proposed relationships in the model are shown below.

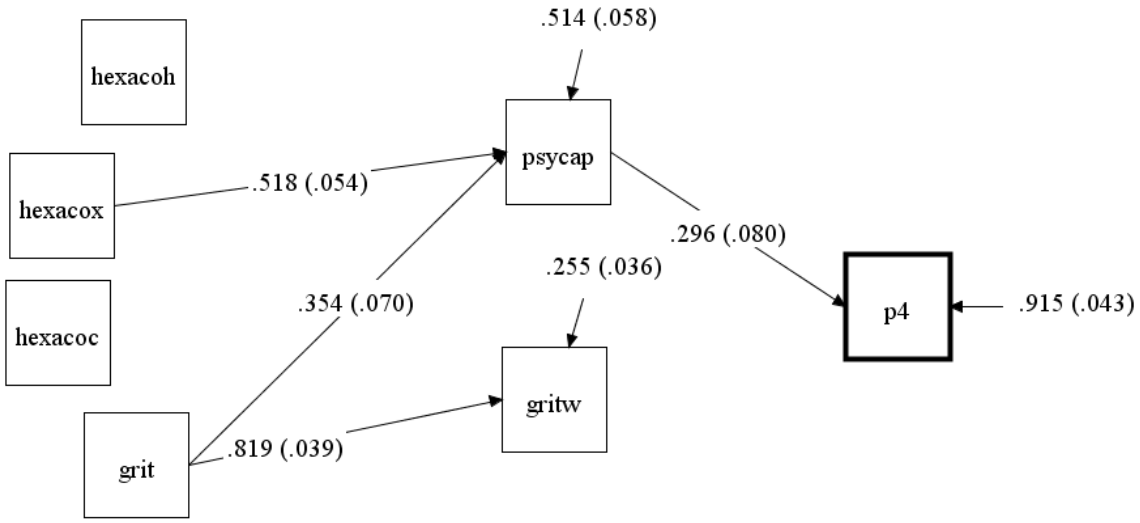
Figure 26. Standardized Results for Model (no control variables) Fit Information

| | | Estimate | S.E. | Est./S.E. | Two-Tailed P-Value |
|---|---|---|---|---|---|
| GRITW ON | | | | | |
| | HEXACOH | 0.066 | 0.044 | 1.520 | 0.129 |
| | HEXACOX | 0.071 | 0.042 | 1.670 | 0.095 |
| | HEXACOC | 0.010 | 0.050 | 0.199 | 0.842 |
| | GRIT | 0.819 | 0.039 | 21.237 | 0.000 |
| PSYCAP ON | | | | | |
| | HEXACOH | -0.112 | 0.062 | -1.805 | 0.071 |
| | HEXACOX | 0.518 | 0.054 | 9.594 | 0.000 |
| | HEXACOC | 0.034 | 0.071 | 0.476 | 0.634 |
| | GRIT | 0.354 | 0.070 | 5.022 | 0.000 |
| P4 ON | | | | | |
| | PSYCAP | 0.296 | 0.080 | 3.688 | 0.000 |
| | GRITW | -0.011 | 0.083 | -0.134 | 0.893 |
| R-SQUARE | | | | | |
| | Observed Variable | Estimate | S.E. | Est./S.E. | P-Value |
| | GRITW | 0.745 | 0.036 | 20.959 | 0.000 |
| | PSYCAP | 0.486 | 0.058 | 8.427 | 0.000 |
| | P4 | 0.085 | 0.043 | 1.979 | 0.048 |

Significant paths highlighted in yellow

Figure 27 provides a view of the study model, with only significant relationships displayed. Figure 28 shows a model that includes the controlling variables: Emotionality, Agreeableness, and Openness to Experience. Even though these constructs had been theorized to be non-significant, Openness to Experience was significant.

Figure 27. Model with Significant Paths



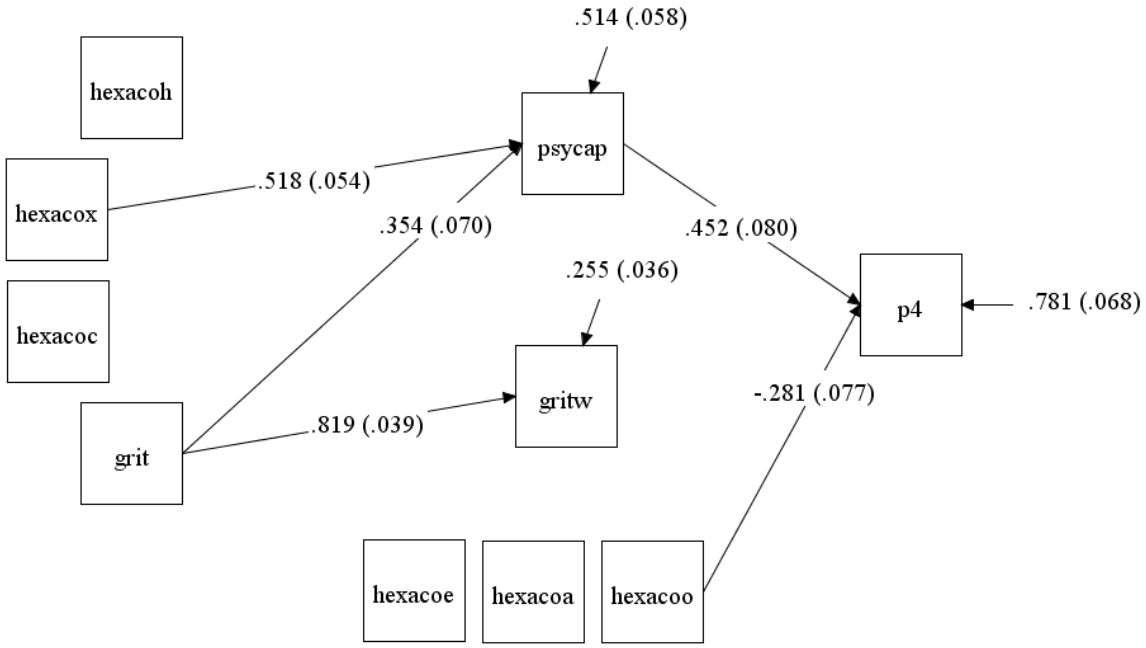

Note: When the composite dependent performance variable, P4, is changed to its individual components, P1, P2, P3, the results are as shown in the table below:

Figure 27b. Alternative Performance Variables

| Dependent Variable | Definition | PsyCap to Performance Standardized Path Estimate | Performance Residual Variance |
|---|---|---|---|
| P1 | Personal financial sales goals | 0.232 | 0.941 |
| P2 | Rank against other salespeople | 0.292 | 0.925 |
| P3 | Role based performance system | 0.248 | 0.938 |
| P4 | Composite measure | 0.296 | 0.915 |

The composite performance variable P4 was selected prior to data analysis. Table 27b, above, is provided to demonstrate how other performance variable options would have performed in the model.

Figure 28. Model with Control Variables and Significant Paths




*Hypothesis 1: Honesty-Humility > PsyCap.*

The hypothesis that Honesty-Humility is positively correlated with psychological capital is rejected with $p = 0.129$

*Hypothesis 2: Extraversion > PsyCap.*

The hypothesis that Extraversion is positively correlated with psychological capital cannot be rejected with $p = 0.000$. The significant standardized path estimate for the relationship between Extraversion and psychological capital is 0.518.

*Hypothesis 3: Conscientiousness > PsyCap.*

The hypothesis that Conscientiousness is positively correlated with psychological capital is rejected with $p = .634$.

*Hypothesis 4: Grit > PsyCap.*

The hypothesis that Grit is positively correlated with psychological capital cannot be rejected with $p = 0.000$. The significant standardized path estimate for the relationship between Grit and psychological capital is 0.354.

*Hypothesis 5: Honesty- Humility > Grit@Work.*

The hypothesis that Honesty-Humility is positively correlated with Grit@Work is rejected with $p = .129$.

*Hypothesis 6: Extraversion > Grit@Work.*

The hypothesis that Extraversion is positively correlated with Grit@Work is rejected with $p = 0.095$.

*Hypothesis 7: Conscientiousness > Grit@Work.*

The hypothesis that Conscientiousness is positively correlated with Grit@Work is rejected with $p = .842$.

*Hypothesis 8: Grit > Grit@Work.*

The hypothesis that grit is positively correlated with Grit@Work cannot be rejected with $p = 0.000$. The significant standardized path estimate for the relationship between grit and Grit@Work is 0.819.

*Hypothesis 9: PsyCap > Job Performance.*

The hypothesis that psychological capital is positively correlated with job performance cannot be rejected with $p = 0.000$. The significant standardized path estimate for the relationship between psychological capital and job performance is 0.296.

*Hypothesis 10: Grit@Work.*

The hypothesis that Grit@Work is positively correlated with job performance is rejected with $p = .893$.

*Control Variables*

While no specific hypotheses were stated concerning the control variables, the model was specified with the variables that were considered important in predicting job performance. The control variables were measured in order to verify that they did not explain any incremental variance in job performance. However, one control variable, Openness to Experience, was significantly correlated with job performance with a standardized path estimate of -0.281 with $p = 0.001$

*Mediation Tests.*

Inherent in the model design is the mediating role of psychological capital and Grit@Work between the four antecedents (Honesty-Humility, Extraversion, Conscientiousness, grit) and the dependent variable job performance. Given that Grit@Work does not significantly predict job performance, the mediation test was irrelevant for this variable. The results of mediation tests on psychological capital are shown and discussed below.

*Psychological Capital as a Mediating Variable*

In order to test the mediating role of psychological capital, the total, total indirect, specific indirect, and direct effects were computed. The results are shown in Figure 29.

Figure 29. Total, Total Indirect, Specific Indirect, and Direct Effects Model as Proposed

| | Estimate | S.E. | Est./S.E. | Two-Tailed P-Value |
|---|---|---|---|---|
| *Effects from GRIT to P4* | | | | |
| Total | 0.096 | 0.066 | 1.445 | 0.148 |
| Total Indirect | 0.096 | 0.066 | 1.445 | 0.148 |
| Specific indirect | | | | |
| P4>GRITW>GRIT | -0.009 | 0.068 | -0.134 | 0.893 |
| P4>PSYCAP>GRIT | 0.105 | 0.035 | 2.954 | 0.003 |
| *Effects from HEXACOX to P4* | | | | |
| Total | 0.152 | 0.043 | 3.519 | 0.000 |
| Total Indirect | 0.152 | 0.043 | 3.519 | 0.000 |
| Specific indirect | | | | |
| P4>GRITW>HEXACOX | -0.001 | 0.006 | -0.134 | 0.894 |
| P4>PSYCAP>HEXACOX | 0.153 | 0.045 | 3.396 | 0.001 |

The results of the mediation tests indicate that the total impact of Extraversion on performance is completely mediated through psychological capital, because the total and total indirect impacts of Extraversion on performance are identical and both are significant with $p = 0.002$. The total impact of grit on performance, while also fully mediated by psychological capital, however, is not significant with $p = 0.152$.

Grit@Work, as previously noted, is not correlated with performance and does not play a mediated role in the model.

**Summary of Structural Model Assessment**

Overall, four of the ten hypotheses could not be rejected. Psychological capital proved to be a significant predictor of performance, fully mediating the impact of

Extraversion on performance. Grit correlated significantly with psychological capital but did not convincingly explain incremental variance in performance.

# CHAPTER V

# DISCUSSION

The present study was designed to add knowledge to the specific topic of sales performance in the business-to-business sales environment while also contributing to the broader body of knowledge related to job performance. The study is unique in its focus on highly-paid, very experienced salespeople with a mean salary of $137,358 and incomes as high as $600,000. By going beyond the classic big five personality traits (Norman, 1963; Tupes & Christal, 1961) and including grit (Duckworth, Peterson, Mathews, & Kelly, 2007, p. 1087), psychological capital (Luthans, Avolio, Avey, & Norman, 2007, p. 542), and Honesty-Humility (Ashton et al., 2004), ten hypotheses were investigated in the hope of explaining more variance in sales performance than past studies that relied on only the five core personality traits (Conscientiousness, Agreeableness, Emotionality, Extraversion, and Openness to Experience).

The results of the study provide several fascinating items for discussion, which are discussed in detail below. Acknowledgment is also given to the limitations of the present study. Suggestions are made for future research to address both the limitations and to

further investigate the findings.

*The Proven Value of Extraversion*

The dominance of Extraversion in a sales environment has been noted in the past (Vinchur et al., 1998, p. 591). This study confirms that in a business-to-business sales environment involving large dollar transactions and highly paid salespeople, Extraversion has a significant impact on sales performance but is fully mediated by psychological capital ($p = 0.00$). Grit also significantly correlates with psychological capital, but the total effect of grit on sales performance is not significant ($p = 0.15$). The significance of Extraversion is not a surprise. But it is surprising, and worthy of additional investigation and discussion, that Conscientiousness is not significant. This is due to the presence of grit in the model.

*Grit vs. Conscientiousness*

Grit consists of two main sub-traits, perseverance of effort (POE) and consistency of interests (COI). In the defining paper (Duckworth et al., 2007), these two sub-traits are analyzed with a Cronbach alpha ($\alpha = 0.78$) for POE and ($\alpha = 0.84$) for COI and a total Cronbach alpha ($\alpha = 0.85$). This compares to the present study values of $\alpha = 0.65$, $\alpha = 0.74$, and $\alpha = 0.74$ respectfully. Factor loadings in the present study were similar to those in the original grit paper with the exception of the removal of two items.

One topic not discussed in Duckworth's grit study is the factor loadings of the two sub-traits of COI and POE onto the grit construct. In the present study, these two sub-traits did not effectively define one theoretical construct from a mathematical perspective. There simply was not enough correlation between the COI and POE to consider them part of one construct. Only after removing one item from each sub-trait (GCOI6 and GPOE2,

as discussed previously) would the two sub-traits load onto the single construct of grit. However, the factor loadings were rather low at 0.459 (COI) and 0.730 (POE).

In the model used for the present study, the presence of grit, which correlates with Conscientiousness ($r = 0.546$), overwhelms the contribution that Conscientiousness might make and leaves Conscientiousness as a non-significant variable. However, the removal of grit and Grit@Work from the model results in Conscientiousness becoming significant and explaining almost as much variance in psychological capital as grit does when it is present in the model. The $R^2$ of psychological capital in the proposed model is 0.49 and the $R^2$ of job performance is .09. If you simply remove grit and Grit@Work from the model, Conscientiousness becomes significant and the $R^2$ of psychological capital is 0.41 and the $R^2$ of job performance is 0.09. So, grit explains a little more variance in psychological capital than Conscientiousness does, but is grit simply a slightly broader measure of Conscientiousness? A recent review of Conscientiousness (Roberts, Lejuez, Krueger, Richards & Hill, 2014, p. 7) suggests, "clearly there are both theoretical and empirical grounds for considering grit as at least a subcomponent of conscientiousness, if not a direct measure of the broader domain." The present study supports this proposition and suggests that grit and Conscientiousness are nearly interchangeable, with grit providing a small incremental gain in explaining psychological capital.

COI seems to be the weaker component of grit. Like the present study, a study of Filipino college students (Datu, J. A. D., Valdez, J. P. M., & King, R. B., 2015) found that COI and POE would not load successfully onto grit. The authors explain that this is due to cultural differences between western civilization values and a more collective community found among the Filipino students. However, their findings were identical to

the present study involving competitive salespeople in a western civilization. Datu et al., (2015) found that COI would not load onto the higher order construct of grit and that there was a negligible relationship between POE and COI. Using the data from the present study and generating a simple regression model using POE and COI to predict performance, POE is a significant predictor ($p = 0.01$) and COI is not significant. Simply using POE to predict performance generates an $R^2$ of 0.05.

In summary, the present study indicates that the grit construct functions in place of Conscientiousness and is only slightly more robust. Grit does not function well as a higher-order construct because its sub-traits do not converge onto the higher order grit.

*The Failure of Honesty-Humility*

In the present study, the two hypotheses relating to Honesty-Humility (H1: HH>PsyCap and H5:HH>Grit@Work) were both non-significant. There is a negative correlation between Honesty-Humility and PsyCap that is significant in the measurement model data but not significant in the data used to assess the structural model. Grit and Extraversion explain variance in psychological capital but Honesty-Humility adds nothing to this in the structural model. In a simple regression model where performance is the dependent variable and Honesty-Humility is the sole independent variable, there is no relationship. There is no clear explanation for the lack of contribution from Honesty-Humility, but it is possible that the very professional and regulated environment of the salespeople studied removed the potential impact of this personality trait.

*The Power of Psychological Capital*

Psychological capital proved to provide the most insight into the performance of the salespeople studied. Without psychological capital as a mediator, there would be no

significant relationships in the model studied with given data. Psychological capital as a higher order construct was the focus of Luthans et al. (2007) in which a rigorous set of tests were conducted on the ability of the higher order construct to improve variance explanation beyond the sum of the sub-traits. The scales utilized for the sub-traits had been used and validated over the course of several years by a number of researchers. The study confirmed the higher-order factor of PsyCap using confirmatory factor analysis, something that was not completed in the defining grit paper (Duckworth et al., 2007). The model fit for PsyCap from the Luthans et al. 2007 paper versus the present study is shown below as a point of interest.

Figure 30: Comparison of Fit Statistics for the Psychological Capital Construct

| | Luthans et. al. 2007 | The Present Study |
|---|---|---|
| SRMR | 0.051 | 0.069 |
| RMSEA | 0.046 | 0.068 |
| CFI | 0.934 | 0.824 |

Psychological capital appears to be a robust, higher order construct that produced similar results ten years ago in the original work done by Luthans and today in the present study with a much different data sample. Psychological capital in a high-level sales environment is an important topic worthy of further investigation.

*A Challenge to Psychological Capital*

As I considered why psychological capital is a significant predictor of job performance, I took a closer look at the twenty-four questions in the psychological capital questionnaire. I also took all 148 questions from the present study's salesperson questionnaire and performed a stepwise regression to predict the performance variable. Of the 148 questions, only four were significant predictors, and they predicted

performance with an adjusted $R^2 = 0.31$. Thus this regression model with only four predictors explains more variance in the performance than does the structural equation model utilized for the present study. Two of the questions are related to Openness to Experience and have negative coefficients. The other two questions pertain to psychological capital. In this regression model, the strongest predictor of performance was the psychological capital question, "Right now I see myself as being pretty successful at work." Therefore, asking someone to evaluate their performance results in an excellent predictor of their current performance. In my view, the fact that this one question is such a significant part of the usefulness of psychological capital diminishes the adaptability of psychological capital in situations where it is being used to project future performance in a different environment.

*The non-significance of Agreeableness and Emotional Control*

As anticipated, Agreeableness and Emotional Control do not correlate significantly with psychological capital or Grit@Work. This confirms the meta-analysis by Vinchur et al., 1998.

*Why the Negative Impact of Openness to Experience?*

Griffin and Hesketh, 2004 (p. 243) investigated reasons why Openness to Experience is typically not a good predictor of job performance. In fact, they highlight that Openness to Experience is the worst trait in the Big Five for predicting job performance. So why would Openness to Experience have a significant impact on job performance in the present study? First, Griffin and Hesketh suggest that Openness to Experience has two main foci, one they label "Openness to Internal Experience" and the other "Openness to External Experience." Only two questions, of sixteen in the Openness

to Experience scale used in the present study, were significant negative predictors of performance. The questions were:

Q85 - My friends would describe me as being unconventional.

Q105 - I enjoy spending time at art galleries.

These two questions fall into the category of "openness to internal experience." Griffin and Hesketh propose that "perhaps people who are open to their internal states might have heightened awareness of negative feelings and, therefore, recognize or acknowledge degrees of anxiety." I propose that it is this increased sense of self-awareness and perhaps sensitivity to anxiety that predicts negative performance in a sales environment and is captured by these two Openness to Experience questions.

*Other Interesting Insights from the Data*

While reviewing additional research on psychological capital, I found that the paper "The Mediating Role of Psychological Capital in the Supportive Organizational Climate-Employee Performance Relationship" (Luthans, Norman, Avolio, Avey, 2008, p. 224) offers insight into the role of positive emotion and cognition on performance. The paper also introduces the possibility that other positive psychological constructs may be added to hope, efficacy, resiliency, and optimism in an effort to capture the positive organizational behavior that psychological capital is designed to represent. Luthans actually recommends that "POB researchers study psychological states that could be validly measured, and that are malleable in terms of interventions in organizations to improve work performance" (Nelson and Cooper, 2007, p 3). The positive psychological state captured by PsyCap is, theoretically, somehow translated into improved work performance. Obviously, the ability to translate positive states into positive behaviors

that improve performance will vary by individual. One possibility that emerges from the data gathered in the present study is the inclusion of a trait (or perhaps it is a malleable state) of perseverance as the measure of one's ability to translate positive states into positive and continued efforts to improve performance. Given the challenges of the grit measure in the present study, an expanded version of psychological capital was created. For discussion purposes, the POE component (perseverance) of grit was incorporated into a broader expanded psychological capital definition that will be referred to as Positive Perseverance. This is defined as the combination of hope, efficacy, resiliency, optimism, and perseverance of effort. This five sub-trait construct was analyzed using confirmatory factor analysis and inter-item correlation. The results are shown in Figure 31. The model fit statistics for Positive Perseverance are:

$$\chi^2_{248} = 546.42\ (p = 0.000),\ \text{CFI} = .824,\ \text{RMSEA} = .068,\ \text{SRMR} = .069$$

As seen in Figure 31, the factor loading for POE (perseverance labeled PCAPP) is 0.745 onto PsyCap. The Cronbach Alpha for the entire construct improves from $\alpha = 0.86$ to $\alpha = 0.88$. From a mathematical and theoretical perspective, POE fits into the psychological capital or Positive Perseverance, as referred to here, construct.

Figure 31. Positive Perseverance Analysis Results

| Item | Field Study Standardized Factor Loading |
|---|---|
| PSYCAPH | |
| PCAPH1 | 0.473 |
| PCAPH2 | 0.508 |
| PCAPH3 | 0.637 |
| PCAPH4 | 0.401 |
| PCAPH5 | 0.705 |
| PCAPH6 | 0.357 |
| | |
| PSYCAPE | |
| PCAPE1 | 0.509 |
| PCAPE2 | 0.546 |
| PCAPE3 | 0.797 |
| PCAPE4 | 0.789 |
| PCAPE5 | 0.703 |
| PCAPE6 | 0.746 |
| | |
| PSYCAPR | |
| PCAPR1R | 0.408 |
| PCAPR2 | 0.430 |
| PCAPR3 | 0.369 |
| PCAPR4 | 0.497 |
| PCAPR5 | 0.534 |
| PCAPR6 | 0.450 |
| | |
| PSYCAPO | |
| PCAPO1 | 0.644 |
| PCAPO2R | 0.580 |
| PCAPO3 | 0.738 |
| PCAPO4 | 0.615 |
| PCAPO5R | 0.606 |
| PCAPO6 | 0.278 |
| | |
| PSYCAPP | |
| GPOE1 | 0.377 |
| GPOE2 | 0.384 |
| GPOE3 | 0.502 |
| GPOE4 | 0.449 |
| GPOE5 | 0.599 |
| GPOE6 | 0.633 |
| | |
| PSYCAP BY | |
| PSYCAPH | 0.893 |
| PSYCAPE | 0.667 |
| PSYCAPR | 0.937 |
| PSYCAPO | 0.670 |
| PSYCAPP | 0.745 |

| Item | Field Study Cronbach's Alpha |
|---|---|
| Entire Set | 0.8774 |
| | |
| PCAPH1 | 0.8746 |
| PCAPH2 | 0.8738 |
| PCAPH3 | 0.8716 |
| PCAPH4 | 0.8744 |
| PCAPH5 | 0.8702 |
| PCAPH6 | 0.8779 |
| PCAPE1 | 0.8722 |
| PCAPE2 | 0.8733 |
| PCAPE3 | 0.8718 |
| PCAPE4 | 0.8708 |
| PCAPE5 | 0.8714 |
| PCAPE6 | 0.8699 |
| PCAPR1R | 0.8740 |
| PCAPR2 | 0.8751 |
| PCAPR3 | 0.8762 |
| PCAPR4 | 0.8740 |
| PCAPR5 | 0.8733 |
| PCAPR6 | 0.8742 |
| PCAPO1 | 0.8728 |
| PCAPO2R | 0.8742 |
| PCAPO3 | 0.8712 |
| PCAPO4 | 0.8733 |
| PCAPO5R | 0.8726 |
| PCAPO6 | 0.8795 |
| GPOE1 | 0.8765 |
| GPOE2 | 0.8739 |
| GPOE3 | 0.8754 |
| GPOE4 | 0.8770 |
| GPOE5 | 0.8735 |
| GPOE6 | 0.8728 |

In an effort to further evaluate this Positive Perseverance concept as potential for future research, a model was evaluated that removed grit, Grit@Work, and psychological capital from the study model and utilized Positive Perseverance as a mediator between the antecedents Honesty-Humility, Extraversion, and Conscientiousness and the dependent variable of performance. The resulting model fit statistics are:

$$\chi^2_3 = 7.56 \ (p = 0.056), \text{CFI} = .956, \text{RMSEA} = .099, \text{SRMR} = .037$$

Table 32. Standardized Path Estimates and Total/Total Indirect/ Effects for Future Research Model

| | | Estimate | S.E. | Est./S.E. | Two-Tailed P-Value |
|---|---|---|---|---|---|
| POSPER ON | | | | | |
| | HEXACOH | -0.065 | 0.063 | -1.028 | 0.304 |
| | HEXACOX | 0.529 | 0.055 | 9.702 | 0.000 |
| | HEXACOC | 0.318 | 0.063 | 5.065 | 0.000 |
| P4 ON | | | | | |
| | POSPER | 0.304 | 0.073 | 4.149 | 0.000 |
| R-SQUARE | | | | | |
| | Observed Variable | Estimate | S.E. | Est./S.E. | P-Value |
| | POSPER | 0.437 | 0.06 | 7.288 | 0.000 |
| | P4 | 0.092 | 0.044 | 2.075 | 0.038 |

Significant paths (above) highlighted in yellow

| | Estimate | S.E. | Est./S.E. | Two-Tailed P-Value |
|---|---|---|---|---|
| *Effects from HEXACOX to P4* | | | | |
| Total | 0.490 | 0.108 | 4.530 | 0.000 |
| Total Indirect | 0.490 | 0.108 | 4.530 | 0.000 |
| Specific indirect | | | | |
| P4>POSPER>HEXACOX | 0.490 | 0.108 | 4.530 | 0.000 |
| *Effects from HEXACOC to P4* | | | | |
| Total | 0.308 | 0.085 | 3.632 | 0.000 |
| Total Indirect | 0.308 | 0.085 | 3.632 | 0.000 |
| Specific indirect | | | | |
| P4>POSPER>HEXACOC | 0.308 | 0.085 | 3.632 | 0.000 |

The proposed future research model fits better theoretically with past research in that it shows the contribution of both Extraversion and Conscientiousness to performance. In this model, the total effect of Conscientiousness, fully mediated by POSPER, is significant. The new model eliminates the problem with grit as simply a broader measure of Conscientiousness and expands on psychological capital to add the action-oriented sub-trait of perseverance.

*Contributions of the Present Study*

The present study makes several contributions to the body of knowledge related to HEXACO, grit, psychological capital and job performance in a sales environment. First, data and analyses support the significant contribution of Extraversion and psychological capital to the prediction of job performance in a high level business-to-business sales environment. Psychological capital was shown to be a significant mediator between Extraversion and job performance. This highlights the need for effective interventions within sales organizations to raise psychological capital.

Interestingly, Honesty-Humility was not a significant predictor of psychological capital or job performance in the group of salespeople studied. While other industries analyzed in previous studies have shown incremental predictive benefit from Honesty-Humility, the highly professional and regulated environment of business-to-business insurance sales did not show any benefit from Honesty-Humility.

A work-contextualized version of grit, the Grit@Work scale, was developed during the pilot study and may be useful in future research studies. The Grit@Work construct was not shown to operate as a mediator between the HEXACO personality traits and job performance. This may help future researchers determine the best way that

Grit@Work might be utilized in new research models.

A challenge to the grit construct was presented that may help focus research interest on the issue of perseverance of effort and consistency of interest not loading onto the grit construct. As a result, a new construct that adds grit's perseverance of effort to psychological capital to create Positive Perseverance was suggested and tested. This new construct addressed some of the issues identified in the present study, functioned as a significant mediator in a revised model, and allowed Conscientiousness to emerge, in line with the extant literature, to be a significant predictor of job performance.

A challenge to one of the items that makes up the psychological capital scale was presented that showed the item, a performance self-rate question, is the most significant predictor of performance of the twenty-four items in the scale. This may lead to future research to revise the scale in order to remove this item.

Finally, unexpectedly, Openness to Experience was a predictor of job performance in the group of sales professionals studied. The purpose of the present study is to identify a model that incorporates personality measures that will explain more variance in job performance than past models. Openness to Experience is a robust predictor of job performance, in this high level sales environment, and this may point the way to improved models.

*Limitations of the Present Study*

There were several limitations to the present study. First, the study group consisted of a very specific niche in the business-to-business sales environment. Findings from the study may not extrapolate to other industries. Second, while a large and diverse set of salespeople surveys were completed (257), a more limited number of

matching supervisor surveys were completed (154). Ideally, a large number of fully completed, matching surveys would have been available. Third, performance ratings are subjective and multiple supervisors across a variety of organizations provided the supervisor evaluations. There could have been a lack of consistency in the method for evaluating the salespeople that introduced unexplained variance into the performance ratings.

*Future Research Opportunities*

As previously mentioned, grit needs to be studied at a deeper level to resolve the struggle found with the two sub-traits not converging onto the higher order grit construct. The present study's findings would not argue in favor of grit but would instead maintain Conscientiousness and keep the POE portion of grit. Grit is an excellent future research opportunity and should be challenged and tested to determine if it has value. Psychological capital has received significant attention for its ability to predict job performance. However, I believe—and confirmed in the present study—that without the item that directly asks survey participants to rate their job performance, the value of psychological capital would be greatly diminished. There is an opportunity to research and determine if a psychological capital questionnaire could be developed without the item of concern and still maintain satisfactory predictive powers.

*Conclusion*

As a 52-year-old PhD student and serial entrepreneur, I have a unique perspective on the present study. When I was 26, I started my first business. It was a software company, and I often worked 18-hour days, sometimes seven days a week. I had two posters that hung on my office wall. One said "Perseverance" and the other said "Your

Attitude Determines Your Altitude." It's ironic that 26 years later, after an incredible journey through a rigorous PhD program and after studying multiple personality traits in the context of some of the best salespeople in the country, I found that wisdom to be true. It really all comes down to having Positive Perseverance.

# REFERENCES


Aghababaei, N., Mohammadtabar, S., & Saffarinia, M. (2014). Dirty Dozen vs. the H factor: Comparison of the Dark Triad and Honesty–Humility in prosociality, religiosity, and happiness. *Personality and Individual Differences*, *67*, 6-10.

Altmaier, E. M., & Hansen, J. I. C. (Eds.). (2011). *The Oxford handbook of counseling psychology.* Oxford: Oxford University Press.

Ashton, M. C.; Lee, K.; Perugini, M.; Szarota, P.; de Vries, R. E.; Di Blas, L.; Boies, K.; De Raad, B. (2004). A six-factor structure of personality-descriptive adjectives: Solutions from psycholexical studies in seven languages. *Journal of Personality and Social Psychology*, *86*(2), 356-366.

Ashton, M. C., & Lee, K. (2008). The prediction of Honesty–Humility-related criteria by the HEXACO and Five-Factor Models of personality. *Journal of Research in Personality*, *42*(5), 1216-1228.

Avey, J. B., Nimnicht, J. L., & Graber Pigeon, N. (2010). Two field studies examining the association between positive psychological capital and employee performance. *Leadership & Organization Development Journal*, *31*(5), 384-401.

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly*, *22*(2), 127-152.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182.

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual differences*, *42*(5), 815-824.

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*, 1-26.

Barrick, M. R., Stewart, G. L., & Piotrowski, M. (2002). Personality and job performance: Test of the mediating effects of motivation among sales representatives. *Journal of Applied Psychology*, *87*(1), 43-51.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238.

Bono, J. E., & Vey, M. A. (2007). Personality and emotional performance: Extraversion, neuroticism, and self-monitoring. *Journal of Occupational Health Psychology*, *12*(2), 177-192.

Borman, W. C., & Motowidlo, S. J. (1997). Task performance and contextual performance: The meaning for personnel selection research. *Human performance*, *10*(2), 99-109.

Brown, S. P., Cron, W. L., & Slocum Jr, J. W. (1998). Effects of trait competitiveness and perceived intraorganizational competition on salesperson goal setting and performance. *Journal of Marketing*, 88-98.

Brown, S. P., & Peterson, R. A. (1994). The effect of effort on sales performance and job satisfaction. *Journal of Marketing*, 70-80.

Buchanan, G. M. & Seligman, M. E. P. (Eds) (1995). *Explanatory style*. Hillsdale, NJ: Lawrence Erlbaum.

Budescu, D. V. (1993). Dominance analysis: A new approach to the problem of relative importance of predictors in multiple regression. *Psychological Bulletin*, *114*(3), 542-551.

Bureau of Labor Statistics (http://www.bls.gov/jlt/)

Cascio, W. F. (2013). *Managing human resources: Productivity, quality of work life, profits* (9th ed.). Burr Ridge, IL: Irwin/McGraw-Hill.

Caspi, A., & Roberts, B. W. (2001). Personality development across the life course: The argument for change and continuity. *Psychological Inquiry*, *12*(2), 49-66.

Chen, G., & Klimoski, R. J. (2003). The impact of expectations on newcomer performance in teams as mediated by work characteristics, social exchanges, and empowerment. *Academy of Management Journal*, *46*(5), 591-607.

Choi, Y., & Lee, D. (2014). Psychological capital, Big Five traits, and employee outcomes. *Journal of Managerial Psychology*, *29*(2), 122-140.

Christensen, A. J., Ehlers, S. L., Wiebe, J. S., Moran, P. J., Raichle, K., Ferneyhough, K., & Lawton, W. J. (2002). Patient personality and mortality: a 4-year prospective examination of chronic renal insufficiency. *Health Psychology*, *21*(4), 315-320.

Ciarrocchi, J. W., Dy-Liacco, G. S., & Deneke, E. (2008). Gods or rituals? Relational faith, spiritual discontent, and religious practices as predictors of hope and optimism. *The Journal of Positive Psychology*, *3*(2), 120-136.

Churchill Jr, G. A., Ford, N. M., Hartley, S. W., & Walker Jr, O. C. (1985). The determinants of salesperson performance: A meta-analysis. *Journal of Marketing Research*, 103-118.

Claxton-Oldfield, S., & Banzen, Y. (2010). Personality characteristics of hospice palliative care volunteers: the ‘‘big five’’ and empathy. *American Journal of Hospice and Palliative Medicine*, *27*(6), 407-412.

Collins, J. C. (2001). *Good to great: Why some companies make the leap … and others don't.* New York: Harper Business.

Combs, G. M., Luthans, F., & Griffith, J. (2008). Learning motivation and transfer of human capital development. In R. J. Burke & C. L. Cooper (Eds.), *The Peak Performing Organization (73-91).* London & New York: Routledge/Taylor & Francis.

Costa, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, *13*(6), 653-665.

Darlington, R. B. (1968). Multiple regression in psychological research and practice. *Psychological Bulletin*, *69*(3), 161-182.

Datu, J. A. D., Valdez, J. P. M., & King, R. B. (2015). Perseverance counts but consistency does not! Validating the short grit scale in a collectivist setting. *Current Psychology*, 1-10.

Davidson, B. A. (2014). *Examining the relationship between non-cognitive skills and leadership: The influence of hope and grit on transformational leadership behavior* (Order No. 3671681). Available from ProQuest Dissertations & Theses Global. (1651235996). Retrieved from http://search.proquest.com.argo.library.okstate.edu/docview/1651235996?accountid=4117

Digman, J. (1990). Personality structure: Emergence of the 5-factor model. *Annual Review of Psychology*, *41*(1), 417-440.

Dinger, F. C., Dickhäuser, O., Hilbig, B. E., Müller, E., Steinmayr, R., & Wirthwein, L. (2015). From basic personality to motivation: Relating the HEXACO factors to achievement goals. *Learning and Individual Differences, 40*, 1-8.

DeVellis, R. F. (2012). *Scale development: Theory and applications* (Vol. 26). Newbury Park, CA: Sage Publications..

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087-1101.

Duckworth, A. L., Quinn, P. D., & Seligman, M. E. (2009). Positive predictors of teacher effectiveness. *The Journal of Positive Psychology*, *4*(6), 540-547.

Dudley, N. M., Orvis, K. A., Lebiecki, J. E., & Cortina, J. M. (2006). A meta-analytic investigation of conscientiousness in the prediction of job performance: examining the intercorrelations and the incremental validity of narrow traits. *Journal of Applied Psychology*, *91*(1), 40-57.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*(2), 256-273.

Eisenberg, N., Duckworth, A. L., Spinrad, T. L., & Valiente, C. (2014). Conscientiousness: Origins in childhood?. *Developmental Psychology*, *50*(5), 1331-1349.

Eskreis-Winkler, L., Shulman, E. P., Beal, S. A., & Duckworth, A. L. (2014). The grit effect: predicting retention in the military, the workplace, school and marriage. *Frontiers in Psychology*, *5*(36), p. 5.

Fabbris, L. (1980). Measures of predictor variable importance in multiple regression: An additional suggestion. *Quality & Quantity*, *14*(6), 787-792.

Feiler, D. C., & Kleinbaum, A. M. (2015). Popularity, similarity, and the network Extraversion bias. *Psychological Science*, 0956797615569580.

Fu, F. Q., Richards, K. A., & Jones, E. (2009). The motivation hub: Effects of goal setting and self-efficacy on effort and new product sales. *Journal of Personal Selling & Sales Management*, *29*(3), 277-292.

Galton, F. (1884). Measurement of Character/Francis Galton. *Fortnightly Review*, *36*,179-185.

Galton, F. (1892). *Hereditary Genius: An inquiry into its laws and consequences*. London: Macmillan.

Gellatly, I. R., & Irving, P. G. (2001). Personality, autonomy, and contextual performance of managers. *Human Performance*, *14*(3), 231-245.

Gist, M. E. (1987). Self-efficacy: Implications for organizational behavior and human resource management. *The Academy of Management Review*, *12*(3), 472-485.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, *4*(1), 26-42.

Gray, J. A. (1987). *The psychology of fear and stress* (No. 5). CUP Archive.

Greenberg H., Weinstein, H., & Sweeney, P. (2001). *How to Hire & Develop Your Next Top Performer: the five qualities that make salespeople great*. New York: McGraw-Hill, p. 5.

Grubbs, J. B., & Exline, J. J. (2014). Humbling Yourself Before God: Humility as a Reliable Predictor of Lower Divine Struggle. *Journal of Psychology & Theology*, *42*(1), 41-49.

Guion, R. M., & Gottier, R. F. (1965). Validity of personality measures in personnel selection. *Personnel psychology*, *18*(2), 135-164.

Halama, P. (2010). Hope as a mediator between personality traits and life satisfaction. *Studia Psychologica*, *52*(4), 309-314.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104-121.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Hurley, R. F. (1998). Customer service behavior in retail settings: A study of the effect of service provider personality. *Journal of the Academy of Marketing Science*, *26*(2), 115-127.

Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: The big five revisited. *Journal of Applied Psychology*, *85*(6), 869-879.

Insurance Journal (http://www.insurancejournal.com/magazines/features/2014/04/07/325068.htm)

Johnson, J. W. (2000). A heuristic method for estimating the relative weight of predictor variables in multiple regression. *Multivariate Behavioral Research*, *35*(1), 1-19.

Johnson, M. K., Rowatt, W. C., & Petrini, L. (2011). A new trait on the market: Honesty–Humility as a unique predictor of job performance ratings. *Personality and Individual Differences*, *50*(6), 857-862.

Johnston, M. W., & Marshall, G. W. (2013). *Sales Force Management: Leadership, Innovation, Technology*. London & New York: Routledge.

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology*, *87*, 797– 807.

Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological bulletin*, *127*(3), 376 - 407.

Kenny, D. A. (2009). *Terminology and basics of SEM*. Retrieved from http://davidakenny.net/cm/basics.htm

Kline, R. B. (2011). *Principles and practice of structural equation modeling (3rd ed.).* New York: Guilford Press.

Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research*, *39*(2), 329-358.

Lee, K., & Ashton, M. C. (2013). The H factor of personality: Why some people are manipulative, self-entitled, materialistic, and exploitive—And why it matters for everyone. Waterloo, ON, Canada: Wilfrid Laurier Univ. Press.

Li, J., Tian, M., Fang, H., Xu, M., Li, H., & Liu, J. (2010). Extraversion predicts individual differences in face recognition. *Communicative & Integrative Biology*, *3*(4), 295-298

Lü, W., Wang, Z., Liu, Y., & Zhang, H. (2014). Resilience as a mediator between extraversion, neuroticism and happiness, PA and NA. *Personality and Individual Differences*, *63*, 128-133.

Lucas, R. E., Diener, E., Grob, A., Suh, E. M., & Shao, L. (2000). Cross-cultural evidence for the fundamental features of Extraversion. *Journal of Personality and Social Psychology*, *79*(3), 452-468.

Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, *7*(2), 209-221.

Luthans, F., Avolio, B. J., Avey, J. B. (2013). *Trainer's Guide for Developing Psychological Capital*. Menlo Park, CA: Mind Garden, Inc., p. 67.

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*(3), 541-572.

Luthans, F., Luthans, K. W., & Luthans, B. C. (2004). Positive psychological capital: Beyond human and social capital. *Business Horizons*, *47*(1), 45-50.

Luthans, F., Norman, S. M., Avolio, B. J., & Avey, J. B. (2008). The mediating role of psychological capital in the supportive organizational climate—employee performance relationship. *Journal of organizational behavior*, *29*(2), 219-238.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2006). Psychological capital: Developing the human competitive edge. Oxford: Oxford University Press.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, *1*(2), 130.

MarshBerry (2012). *The MarshBerry 2013-2014 Market & Financial Outlook*. Woodmere, Ohio: Marsh, Berry & Company, Inc.

Mayer, D., & Greenberg, H. M. (1964). *What makes a good salesman. Harvard Business Review*, July-Aug.,119-125.

Naragon, K., & Watson, D. (2009). "Positive affectivity." In S. Lopez (Ed.), *The Encyclopedia of Positive Psychology* (pp. 707-711). Hoboken, NJ: Wiley-Blackwell.

Nelson, D., & Cooper, C. L. (Eds.), (2007). Positive organizational behavior: Accentuating the positive at work. Thousand Oaks, CA: Sage.

Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *The Journal of Abnormal and Social Psychology*, *66*(6), 574-583.

Oh, I. S., Le, H., Whitman, D. S., Kim, K., Yoo, T. Y., Hwang, J. O., & Kim, C. S. (2014). The Incremental Validity of Honesty–Humility Over Cognitive Ability and the Big Five Personality Traits. *Human Performance*, *27*(3), 206-224.

Owens, B. P., Johnson, M. D., & Mitchell, T. R. (2013). Expressed humility in organizations: Implications for performance, teams, and leadership. *Organization Science*, *24*(5), 1517-1538.

Peterson, S. J., Luthans, F., Avolio, B. J., Walumbwa, F. O., & Zhang, Z. (2011). Psychological capital and employee performance: A latent growth modeling approach. *Personnel Psychology*, *64*(2), 427-450.

Peterson, C., Park, N., & Seligman, M. E. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, *6*(1), 25-41.

Rapaille, G. C. (2005). Leveraging the psychology of the salesperson. A conversation with psychologist and anthropologist G. Clotaire Rapaille. *Harvard Business Review*, *84*(7-8), 42-44.

Reed, J., Pritschet, B. L., & Cutton, D. M. (2013). Grit, conscientiousness, and the transtheoretical model of change for exercise behavior. *Journal of Health Psychology*, *18*(5), 612-619.

Reich, J. W., Zautra, A. J., & Hall, J. S. (Eds.). (2010). *Handbook of Adult Resilience*. New York: Guilford Press.

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology*, *58*(3), 307-321.

Roberts, B. W., Lejuez, C., Krueger, R. F., Richards, J. M., & Hill, P. L. (2014). What is conscientiousness and how can it be assessed?. *Developmental Psychology*, *50*(5), 1315.

Salgado, J. F. (1997). The Five Factor Model of personality and job performance in the European Community. *Journal of Applied Psychology*, *82*(1), 30-43.

Shalley, C. E., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity: Where should we go from here? *Journal of Management*, *30*(6), 933-958.

Sharpe, J. P., Martin, N. R., & Roth, K. A. (2011). Optimism and the Big Five factors of personality: Beyond neuroticism and extraversion. *Personality and Individual Differences*, *51*(8), 946-951.

Sitser, T., van der Linden, D., & Born, M. P. (2013). Predicting Sales Performance Criteria With Personality Measures: The Use of the General Factor of Personality, the Big Five and Narrow Traits. *Human Performance*, *26*(2), 126-149.

Smillie, L. D., Cooper, A. J., Wilt, J., & Revelle, W. (2012). Do extraverts get more bang for the buck? Refining the affective-reactivity hypothesis of Extraversion. *Journal of Personality and Social Psychology*, *103*(2), 306-326.

Snyder, C.R., Irving, L.M., & Anderson J. (1991). Hope and health. In C.R. Snyder & D.R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 285–305). Elmsford, NY: Pergamon Press.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate behavioral research*, *25*(2), 173-180.

Tabachnick, B. G., and L. S. Fidell. "Multivariate analysis of variance and covariance." *Using multivariate statistics* 3 (2007): 402-407.

Thompson, E. R. (2008). Development and validation of an international English big-five mini-markers. *Personality and Individual Differences*, *45*(6), 542-548

Thompson, E. R., & Phua, F. T. (2012). A brief index of affective job satisfaction. *Group & Organization Management*, *37*(3), 275-307.

Thoms, P., Moore, K. S., & Scott, K. S. (1996). The relationship between self-efficacy for participating in self-managed work groups and the big five personality dimensions. *Journal of Organizational Behavior*, *17*(4), 349-362.

Tett, R. P., & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied Psychology*, *88*(3), 500-517.

Tonidandel, S., & LeBreton, J. M. (2011). Relative importance analysis: A useful supplement to regression analysis. *Journal of Business and Psychology*, *26*(1), 1-9.

Tupes, E. C., & Christal, R. E. (1961). Recurrent personality factors based on trait ratings (Rep. No. ASD-TR-61-97). Lackland Air Force Base, TX: US Air Force, Aeronautical Systems Division, Personnel Laboratory.

Veroff, J. (1983). Contextual determinants of personality. *Personality and Social Psychology Bulletin*, *9*(3), 331-343.

Vinchur, A. J., Schippmann, J. S., Switzer III, F. S., & Roth, P. L. (1998). A meta-analytic review of predictors of job performance for salespeople. *Journal of Applied Psychology*, *83*(4), 586-597.

Von Culin, K. R., Tsukayama, E., & Duckworth, A. L. (2014). Unpacking grit: Motivational correlates of perseverance and passion for long-term goals. *The Journal of Positive Psychology*, *9*(4), 306-312.

Warr, P., Bartram, D., & Martin, T. (2005). Personality and sales performance: Situational variation and interactions between traits. *International Journal of Selection and Assessment*, *13*(1), 87-91.

Weinberg, M. J, Rough Notes; Jun 2002; 145, 6; ABI/INFORM Complete pg. 126

Weiner, I. B., Highhouse, S., & Schmitt, N. W. (2012). *Handbook of Psychology, Industrial and Organizational Psychology.* Hoboken, NJ: Wiley.

Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of Management Journal*, *41*(5), 540-555.

Wilson, G. (1981). Personality and social behavior. In H. J. Eysenck (Ed.), *A Model for Personality* (pp. 210 –245). New York: Springer.

Wren, B., Berkowitz, D., & Grant, E. S. (2014). Attitudinal, personal, and job-related predictors of salesperson turnover. *Marketing Intelligence & Planning*, *32*(1), 107-123.

Zallocco, R., Bolman Pullins, E., & Mallin, M. L. (2009). A re-examination of B2B sales performance. *Journal of Business & Industrial Marketing*, *24*(8), 598-610.

# APPENDIX A

**Scales Utilized**

Survey Instrument – Employee Version

HEXACO – Wallace and Edwards Version 2015

Grit: Duckworth, Peterson, Mathews, & Kelly, 2007, p. 1090

PsyCap: Luthans, Youssef, & Avolio, 2006, p. 237

Grit@Work: Proposed in the present study

Survey Instrument – Supervisor Version

Job Performance A: Role Based Performance Scale: Welbourne, Johnson and Erez, 1998, p. 554 and Chen & Klimoski 2003, p. 597

Job Performance B: Objective Financial Evaluation of Sales People proposed in the present study.

**Survey Instrument – Employee Version**

This survey contains statements about you. There is no right or wrong answer. We simply would like to know how much you agree or disagree with each statement. Select the appropriate response using the following scale:

Strongly Agree
Agree
Neutral (neither agree nor disagree)
Disagree
Strongly Disagree

I often set a goal but later choose to pursue a different one
I have been obsessed with a certain idea or project for a short time but later lost interest.
I have difficulty maintaining my focus on projects that take more than a few months to complete.
New ideas and projects sometimes distract me from previous ones.
My interests change from year to year.
I become interested in new pursuits every few months.
I finish whatever I begin.
Setbacks don't discourage me.
I am diligent.
I am a hard worker.
I have achieved a goal that took years of work.
I have overcome setbacks to conquer an important challenge.
At work, I have been obsessed with a certain idea or project for a short time but later lost interest.
At work, I am diligent.
At work, I am a hard worker.
I set goals at work but often change them.
I have focused on a project at work but later lost interest.
On work projects lasting more than a few months, I tend to lose my focus
I like to jump to new projects at work before completing current projects.
I like to finish the work projects I begin.
When it comes to getting my work done, I am a diligent worker.
I work hard to get my work completed.
I would work years to achieve a goal at work.
I have difficulty staying focused on my work goals.
My interest in certain work projects changes from year to year.
New pursuits at work draw my attention away from current pursuits.
I am not easily discouraged at work.
I have conquered a significant challenge at work by overcoming obstacles.
In business, you have to be flexible in your opinions or views.
I enjoy being with other people.
I work hard to re-establish relationships where trust has been broken
It takes a lot to get me frightened.
Other people describe me as someone who thinks carefully before acting.

I seek comfort from others when things go wrong.
Other people tell me that I am a sincere person.
It really takes a lot to make me angry.
No matter what comes my way at work, I keep a positive outlook.
It is important to be identified with only the best.
I am deeply moved when I see or experience negative events at work
I do not like speaking in front of large groups.
Other people have told me that I am a sentimental person at work
I do not put on a show at work just to impress people.
Other people have told me that I appear confident in social settings.
I am modest at work.
I am flexible when work conditions change.
Other people at work consider me to be comfortable in social situations.
My colleagues would describe my work area as well organized.
I focus on achieving my goals.
I rarely get aggravated.
I prefer a job that has a lot of social interaction.
I can feel the pain of others when they are upset
Other people would probably describe me as a cheerful person.
In general, I often look for better methods to complete tasks.
I find myself to be the optimist at work - trying to get my colleagues to cheer-up and be livlier.
My vivid imagination allows me to create innovative solutions at work.
At parties or other gatherings, I like to talk to as many people as possible.
At work, I believe that cooperation is better than competition.
I am usually the first one to speak in a group.
My social status at work is important to me.
People see the real me every day.
I really feel great about myself in social situations.
In general, If I can get away with it, I will take something from work.
I exercise patience at work.
I am just a simple person and do not expect special treatment.
At work, it is critical to be a flexible colleague.
In general, I am motivated to achieve as much as possible.
I do not need the support of the people I work with.
In social situations, I find people are drawn to me.
I like for things to be in order.
Other people have told me that I worry too much
I prefer to work in a organized manner.
I am generally a mild-mannered person when dealing with other people.
I tend to dominate conversations in group meetings.
It takes a lot to get me to lose my temper.
Other people often say I am an 'artsy' type of person.
Other people have said that I prefer the finer things in life.
I feel like I am driven by a strong internal engine to get things done.
I am unwilling to manipulate others at work, even if I could personally benefit.
My friends would describe me as being unconventional.

When I encounter a problem, I look for a creative solution.
After careful thought, I usually begin work tasks with a plan in mind.
I make friends easily at work.
I enjoy going to the theater for plays, musicals, and other forms of live theater.
Rules are rules, I do not 'bend' rules to get what I want.
I prefer working in an environment that is visually appealing.
I am no different than anyone else at work.
It is hard for me to stay angry at people
My colleagues would describe me as a detail-oriented person.
Others describe me as being naturally curious.
Generally, I am an easy person to talk to.
If someone has wronged me, I am willing to forgive and move forward
Others tell me that I have a strong work ethic.
I have been told that I do not always conform.
I consider myself a nonconformist.
People tell me that I sometimes 'freeze-up' during difficult situations
When I get stressed at work, I think of the worst possible outcome.
As long as I obtain a good outcome, I am not concerned with the process.
I feel anxious when I wait on an important answer, decision, or result.
I enjoy spending time at art galleries.
I am quite good at controlling my impulses.
I try to avoid being critical of other people.
I am often fearful for my safety
I anticipate the consequences of my actions.
In general, most things in life are really exciting.
In general, I avoid unfamiliar situations
In general, I like to know how things work.
On average, I should be treated with more respect than other people.
Other people have told me the I tend to bend the rules.
I avoid being critical of others, even when they make a lot of mistakes
When working, I am very thorough and concerned with details.
I focus on the bad things that can happen.
I am deeply moved when others are upset.
Other people tell me that I always notice the little things.
Planning ahead is always a good thing compared to waiting till the last minute.
Other people often tell me I am innovative.
I am a very curious person.
I find it useful to discuss problems with other people.
I ask a lot of questions so I can understand better.
It is not right to hold grudges
My primary objective for working is to become wealthy.
I repeatedly double-check my work to ensure it is accurate.
My co-workers would describe me as a lenient and gentle person.
I often have very different ideas than other people.
Emotional support from others is very important to me.
I feel confident analyzing a long-term problem to find a solution.

I feel confident in representing my work area in meetings with management.
I feel confident contributing to discussions about the organization's strategy.
I feel confident helping to set targets/goals in my work area.
I feel confident contacting people outside the organization (e.g., suppliers, customers) to discuss problems.
I feel confident presenting information to a group of colleagues.
If I should find myself in a jam at work, I could think of many ways to get out of it.
At the present time, I am energetically pursuing my work goals.
There are lots of ways around any problem.
Right now I see myself as being pretty successful at work.
I can think of many ways to reach my current work goals.
At this time, I am meeting the work goals that I have set for myself.
When I have a setback at work, I have trouble recovering from it, moving on.
I usually manage difficulties one way or another at work.
I can be "on my own," so to speak, at work if I have to.
I usually take stressful things at work in stride.
I can get through difficult times at work because I've experienced difficulty before.
I feel I can handle many things at a time at this job.
When things are uncertain for me at work, I usually expect the best.
If something can go wrong for me work-wise, it will.
I always look on the bright side of things regarding my job.
I'm optimistic about what will happen to me in the future as it pertains to work.
In this job, things never work out the way I want them to.
I approach this job as if "every cloud has a silver lining."

**Survey Instrument – Supervisor Version** (supervisor completes this for each employee that completed the employee survey)

Please respond to each of the following statements using the following scale:

5=Excellent
4=Good
3=Satisfactory
2=Needs some improvement
1=Needs much improvement

JOB (Doing things specifically related to one's job description)

Quantity of work output.

Quality of work output.

Accuracy of work.

Customer service provided (internal or external).

CAREER (obtaining the necessary skills to progress through one's organization)

Obtaining personal career goals.

Developing skills needed for his/her future career

Making progress in his/her career

Seeking out career opportunities

INNOVATOR (creativity and innovation in one's job and the organization as a whole)

Coming up with new ideas.

Working to implement new ideas.

Finding improved ways to do things.

Creating better processes and routines.

TEAM (working with coworkers and team members, toward success of the firm)

Working as part of a team or work group.

Seeking information from others in his/her work group.

Making sure his/her work group succeeds.

Responding to the needs of others in his/her work group.

ORGANIZATION (going above the call of duty in one's concern for the company)

Doing things that helps others when it's not part of his/her job.

Working for the overall good of the company.

Doing things to promote the company.

Helping so that the company is a good place to be.

CUSTOMER SERVICE (working with clients or customers internal or external to the organization toward the success of the project.)

Accurately anticipating customer's needs.

Establishing excellent rapport with customers.

Interacting professionally with customers

Providing high quality service to customers

To what extent did this salesperson reach his\her financial goals during the most recently completed evaluation period?

How would you rank the overall sales performance of this salesperson? Think of five tiers where each tier represents 20% of the salespeople. The list below is designed to help you visualize what we are asking. Remember, this is a relative ranking of your salespeople. You should attempt to allocate your salespeople evenly among the five tiers.

Enter the total annual compensation, including salary, bonuses, commissions and any other incentive pay. Please provide the best estimate of the total compensation of this employee. For consistency, we suggest you use the number as reported on the employee's **W-2 for 2014, Box 5, Medicare wages and tips**.

VITA

Timothy Lee Coomer

Candidate for Degree of

Doctor of Business Philosophy

Title of Study: PERSONALITY, GRIT, AND PSYCHOLOGICAL CAPITAL AS THEY RELATE TO SALES PERFORMANCE

Major Field: Business Administration (Management)

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Business Administration at Oklahoma State University, Stillwater, Oklahoma in August 2016.

Completed the requirements for the Master of Business Administration, Finance concentration, Vanderbilt University, Nashville, Tennessee, May 1988

Completed the requirements for the Bachelor of Engineering, Mathematics and Mechanical Engineering double major, Nashville, Tennessee, May 1985

Experience:

1991- Present. CEO/Founder SIGMA Actuarial Consulting Group, Inc. Brentwood, TN

1991- 2010. CEO/Founder Specific Software Solutions, LLC, Brentwood, TN

1988-1991. Consultant, Willis, Inc., Nashville, TN

1985-1986. Engineer, Teledyne Brown Engineering, Huntsville, AL